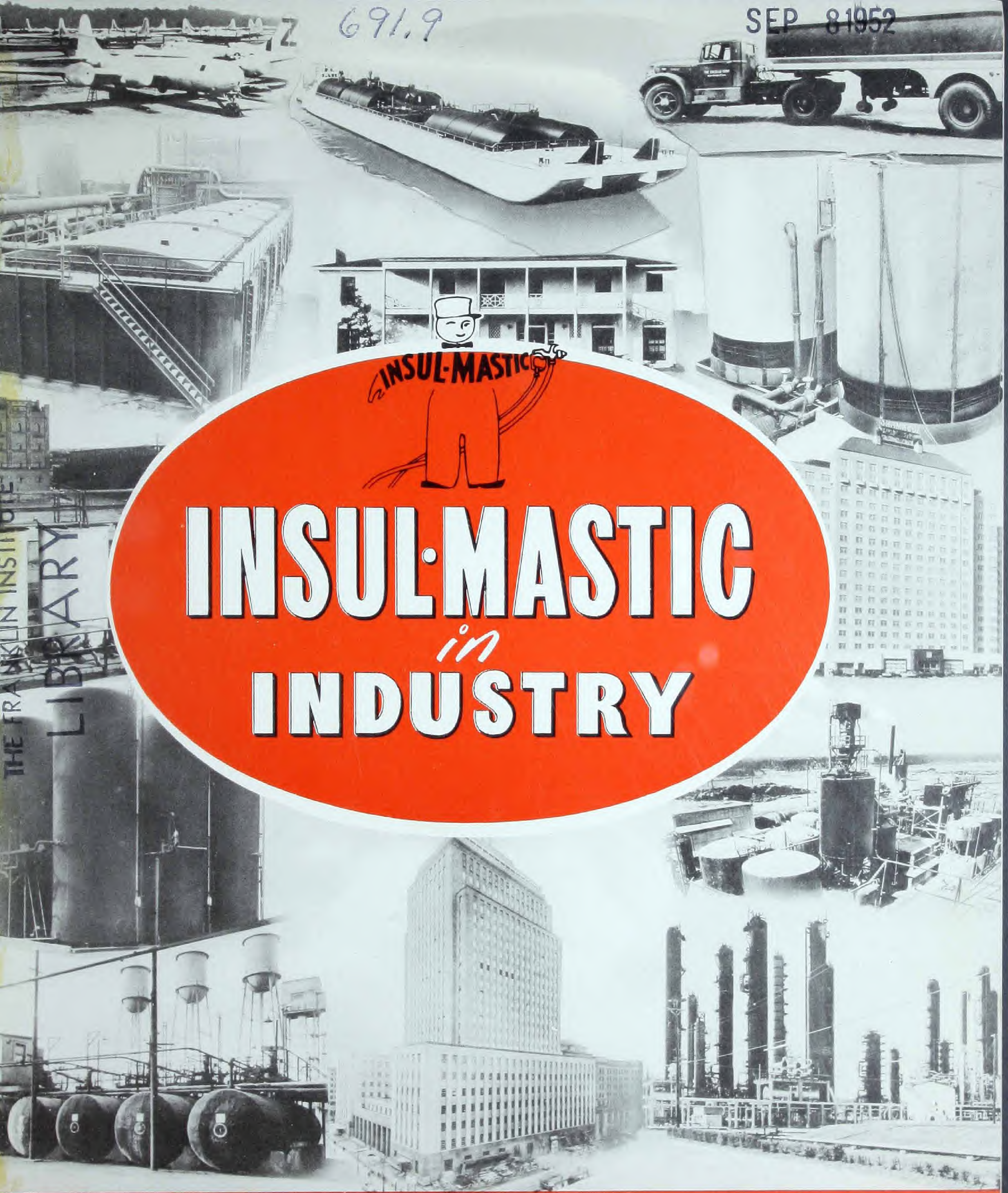
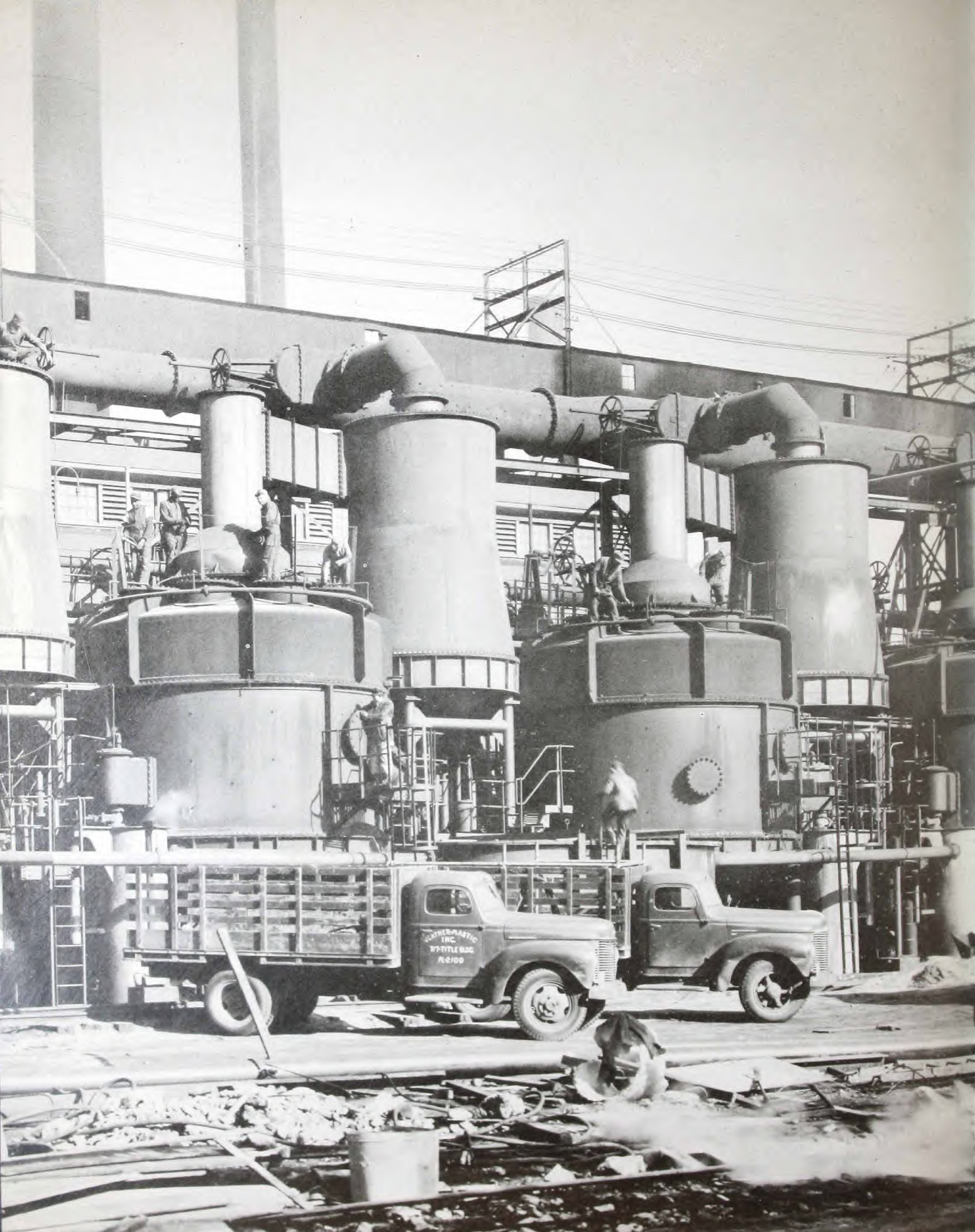


INSUL·MASTIC *in* INDUSTRY

☆ MOISTURE SEAL ☆ RUST PREVENTIVE ☆ VAPOR SEAL ☆ INSULATION


LEATHERMATIC
INC.

An Insul-Mastic licensee's application crew swarms over sulphuric acid vessels in the coke oven area of an eastern steel mill. The vessels are being coated with *Insul-Mastic Vaporseal* as protection from the sulphuric acid and from acid filled steam from the quenched coke.

GM101-3-52-10M

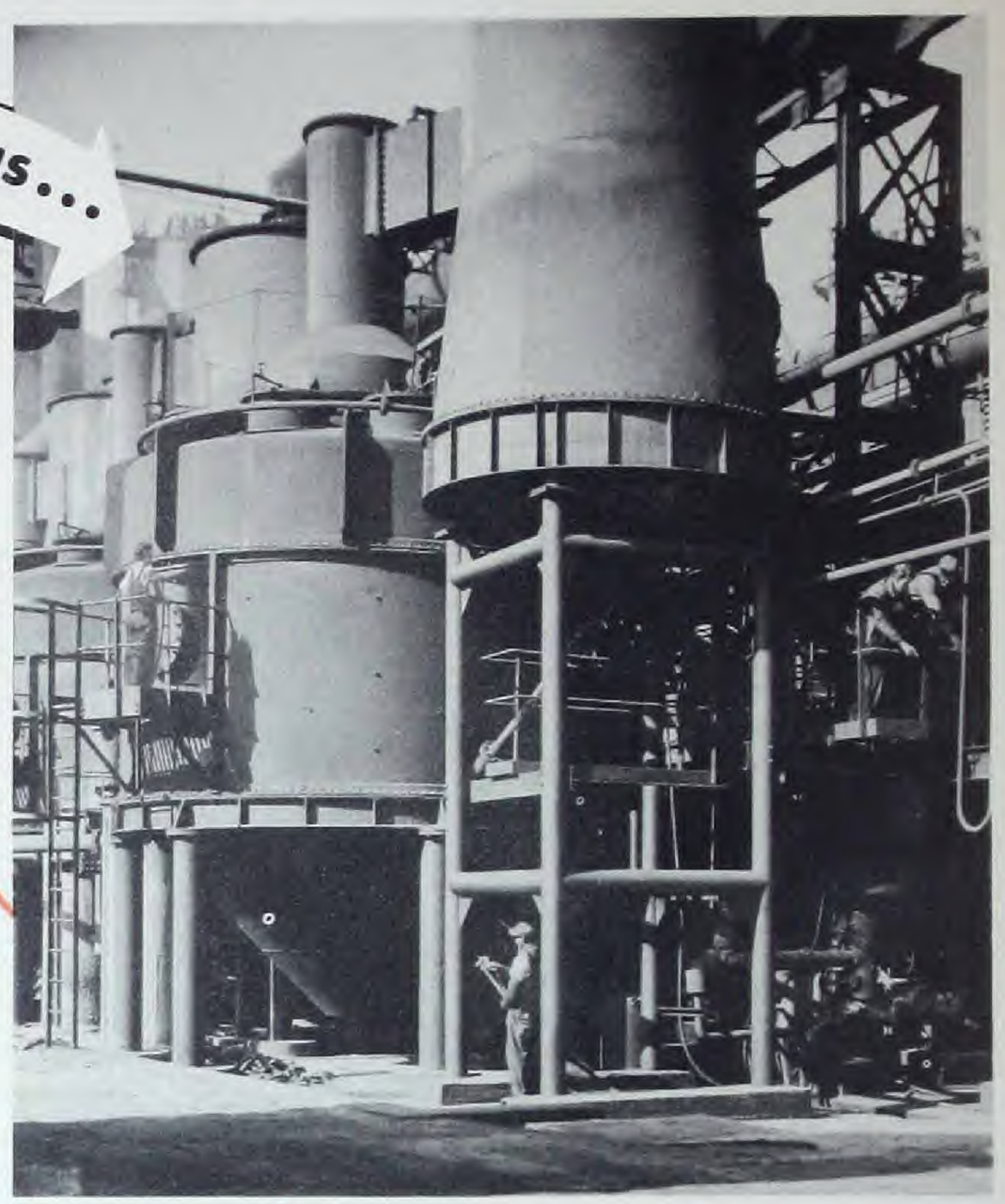
The materials described in this book are protected by patents or applications for patents.

In the field of protective coatings...

QUALITY MEANS

INSUL-MASTIC

Coatings carefully manufactured to do a job, *not by-products*, or *hasty formulations to tap a market*. Quality coatings are Insul-Mastic's *only* business and *they have no equal*.



LONG LIFE

Insul-Mastic's maintenance-free life was determined to be approximately 50 years by a well known testing laboratory*. An eight-year continuous test in a Weather-O-Meter (equivalent to 57 years outside weather) has corroborated this finding. Gilsonite plus carefully chosen and tested Mica Flake, make possible this quality. The National Bureau of Standards determined mica by far the most effective filler contributing to long life.

RESISTANCE TO EXTREME TEMPERATURES

Insul-Mastic has a temperature range of —40° F. to +300° F. due to proper balancing of high melting point Gilsonite and low melting point asphalts.

RESISTANT TO MOST ACIDS AND ALKALIS

Insul-Mastic's principal ingredient is Gilsonite, a hydrocarbon so thoroughly saturated that it is practically inert and, therefore, rarely displaced by acids and alkalis.

EASY TO SPRAY

Homogenized and filtered Insul-Mastic flows smoothly through the spray gun and onto the surface without blobs and pinholes or clogging the gun. Applied at atmospheric temperature — no heating required.

NO HARMFUL EFFECTS... ODORLESS AFTER DRYING

Insul-Mastic has no toxic fumes which necessitate wearing a mask, nor will it burn the eyes or skin of workmen. These coatings have no odor after they have dried.

Think first of the coatings that last!

INSUL-MASTIC

INSUL-MASTIC COATINGS

Insul-Mastic is the recognized name for heavy, homogenized protective coatings which have been specially and carefully prepared to perform four important functions:

Preventing corrosion
Sealing out water
Vaporsealing
Insulating

Insul-Mastic protective coatings are applied as thick as ⅛". The insulating type of coating is applied ¼" to ⅜" thickness. These coatings are usually spray applied in only one operation.

Insul-Mastic coatings are known for their outstanding performance. They are tough, resilient, rugged, and will effectively withstand not only abrasive forces, but also the destructive action of most acids, alkalies and salts, as well as the actinic rays of the sun. Their outstanding quality is due in part to the very careful selection of the materials that are used in the formulation of these coatings. These basic raw materials are pure minerals, chosen for their resistance to acids, alkalies, weather and wear. The manufacture of coatings is the only function of Insul-Mastic Laboratories, and therefore, they are not concerned with the disposition of leftover by-products from other chemical processes, and consequently are free to choose ingredients solely upon their merit.

All of these coatings are filtered and homogenized, insuring smoothness and uniformity, which is so essential to their application.

Insul-Mastic is presently providing coating protection to diversified industry across the nation. This exceptional position was attained only after thorough and extensive testing, over lengthy periods, in the research laboratories, as well as in the field, by America's largest companies. The results were so convincing that Insul-Mastic is today the accepted material in an ever increasing number of coating specifications. This performance is due to the attribute of quality which has been engineered into Insul-Mastic from the first experimental formulas, nearly twenty years ago.

This booklet informs you of Insul-Mastic materials which are unique in the coatings field, and cites some examples of their uses.

INSUL-MASTIC CORPORATION OF AMERICA
OLIVER BUILDING PITTSBURGH 22, PA.

INSUL-MASTIC selection table

applications	number	type	special features	coverage	page
VAPORSEAL					
For metal, masonry or ceramic surfaces and over insulation.	**4010**	Gilsonite base with fillers of selected mica flake, asbestos fiber and ceramic clay.	Basic, high quality Gilsonite Insul-Mastic. Two types — fast and slow drying.	5 to 6 gal. per 100 sq. ft. gives 1/16" coating.	**7**
"	**4138**	"	Dries slightly harder than 4010.	"	**7**
"	**4129**	"	Extra fast drying but less resistant to temperature extremes and sun than 4010. Good for indoor protection.	"	**7**
INSULATING					
For insulation of metal vessels between −40° F. and +300° F.; and for walls of buildings. Also prevents or reduces condensation.	**553**	Same as 4010 with addition of granulated cork.	Stops 65% of heat flow through metal and prevents corrosion.	20 to 25 gal. per 100 sq. ft. gives 1/4" coating.	**9**
ROOFING					
For roofs of 25% to 60% slope.	**4005**	Similar to 4010.	Will noi slip on steep roofs.	4 to 6 gal. per 100 sq. ft.	**11**
For roofs of less than 2" per ft. slope.	**4122**	"	Lighter than 4005.	3 to 4 gal. per 100 sq. ft.	**11**
VINYL					
Base for mastic in vapor-sealing semi-rigid insulation. For moisture proof packaging. For chemical resistant coating.	**238**	Sprayable Plastic.	Can bridge gaps of 20". Tensile strength of 1500 p.s.i. Extremely tough and flexible.	1 gal. per 100 sq. ft. gives 5 to 6 mil coating.	
MISCELLANEOUS					
Caulking compound.	**507**	Gilsonite base.	Black color.		**13**
Primer—for dusty or porous walls.	**4132**	Gilsonite base.	Black color.	1 gal. per 100 to 400 sq. ft.	**13**
Brushing—for short term protection of steel.	**5132**	Gilsonite base.	Protects for 6 months to 1 year.		**13**
Thinner—for thinning mastics.	**4029**	Gilsonite base.	Correct proportions of solvents and solids.		**13**
Aluminum spray—decorative, sun deflecting finish.	**4604-E**	Gilsonite base aluminum coating.	Compatible with Gilsonite mastics.	1 gal. per 250 to 400 sq. ft.	**13**
For holding insulation in place until banding. Backs and joints are sealed in the same operation.	**5126-Z**	Gilsonite base, trowel applied.	Smooth, buttery, easily spread. Does not roll or cling to trowel.		**15**
Membraning.	**Glasfab**	Woven glass fiber cloth.	No rotting, no wicking.		**20**
MICA					
Decorative coating for sealing homes and buildings against moisture.	**4880**	Mica and oil base, white and off-white coatings.	15 times thicker than paint.	3½ to 5 gal. per 100 sq. ft.	**38**
"	**3911**	"	"	"	**38**
"	**4704**	"	"	"	**38**
"	**4806**	"	"	"	**38**
"	**4020**	"	"	"	**38**
"	**4123**	"	"	"	**38**

Unless otherwise specified, Gilsonite material is black in color.

the development of INSUL-MASTIC

Insul-Mastic coatings were first developed in the early thirties for application to railroad rolling stock, under the trade name "Dednox." They were radically new, prepared under secret formula, for which basic patents were granted both in the United States and Canada. Use in the railroad field provided a severe initial on-the-job test **for weathering**—from scorching deserts to freezing mountains within a few hours; **for resilience and flexibility**—on straining, weaving freight cars; **for abrasive wear**—on the underslung equipment of the newly introduced "Streamliners", with the greatly increased turbulence arising from higher speeds throwing up a constant blast of road ballast; and **for resistance to brine and foot traffic**—on the roofs of refrigerator and other cars. Since that time, approximately a quarter million railroad cars have been so processed, with no known failure within the lifetime of a car or engine.

Meantime, the use of Insul-Mastic materials expanded into other fields, and they are now giving outstanding protection to buildings, tanks, pipes, structural steel and insulation in such industries as oil-refining, chemical, soap, rubber, food processing, smelting, textile, paper and butadiene.

With the advent of World War II, at the request of the United States Military Agencies, we assisted in the development of the waterproofing procedure for thousands of cartons shipped overseas, for the moisture-vapor sealing of the costly and delicate radar and electrical equipment going to the battlefronts; and for the insulation of hospital units going to the humid climes. In much of this work, Insul-Mastic occupied the unique position of being a Directive.

When the war was in its closing days, we were again called upon by the military—United States Army Ordnance requested that we lend our services to the development of an effective method for the long term preservation of the war materiel not yet shipped overseas, and that which would be returned from the battlefronts. They were seeking a coating with a fifty year longevity.

One of the nation's foremost laboratories was chosen by the United States Army Ordnance to be the final determinent for this coating procedure. Insul-Mastic was the only material ever approved under their original rigid specification. The result of Insul-Mastic's acceptance for this important undertaking brought to us such applications as the "Mothballing" of the B-29's for the Air Materiel Command, and similar processing of other diversified war materiel for long term storage.

Other distinctive groups of materials have been developed, and in the latter portion of this booklet Mica—white based types of coatings—are described.

contents

types of GILSONITE INSUL-MASTIC

Insul-Mastic is composed of materials each of which has been carefully, thoughtfully and scientifically selected to perform a particular function. These ingredients are discussed in detail beginning on page 24, but they will be briefly outlined here.

Gilsonite is an important ingredient of Insul-Mastic. The Gilsonite content runs up to approximately 50% of the petroleum asphaltic content. This mineral is almost completely inert chemically, and contributes greatly to Insul-Mastic's resistance to chemical attack since it resists reaction with other chemicals.

The National Bureau of Standards and other authorities have established the fact that the durability of asphaltic coatings is greatly increased by adding mineral fillers. They also increase fire resistance and di-electric properties. Insul-Mastic contains up to 55% of such fillers. They are:

Mica flake—for resistance to weather and wear.

Asbestos fibre—for binding the materials into a most cohesive coating.

Ceramic clay—for smooth spraying without pinholes.

Insul-Mastic also contains specially selected volatiles for uniformity and pliability.

Lastly, Insul-Mastic contains plasticizers which increase its flexibility and elasticity.

All of these materials are carefully balanced to permit Insul-Mastic to withstand extremes of heat as well as cold—moisture as well as dryness—expansion as well as contraction—ceilings as well as floors. Each adds its share to Insul-Mastic's quality.

An Insul-Mastic licensee's application crew swarms over sulphuric acid vessels in the coke oven area of an eastern steel mill. The vessels are being coated with *Insul-Mastic Vaporseal* as protection from the sulphuric acid and from acid filled steam from the quenched coke.

Insulated tanks of acid at the American Cyanamid Company, Bound Brook, New Jersey. The insulation and the tanks beneath it are protected from disintegration due to the acids by a coating of *Insul-Mastic Vaporseal*.

VAPORSEAL MASTICS

No. 4010 vaporseal

No. 4010 Vaporseal is designed for application to steel, iron and other metals, stucco, concrete, cement, cement block, brick, and other masonry or ceramic surfaces used for building purposes, and over such insulating materials as cellular glass, fibre glass, mineral wool blanket, asbestos air cell, vegetable fibre board, etc., for which the most impervious coating is desired as protection against corrosive attack and penetration of moisture or oxygen from without. The surfaces must be clean and absolutely dry before application to prevent trapping of moisture and resultant blister formations.

This material may be used either indoors or outdoors, and on horizontal, sloped, vertical or inverted surfaces. It retains full efficiency throughout temperatures ranging from —40° F. to 300° F. Tests by independent laboratories placed its moisture-vapor transmission rate at .01 grams per 100 sq. inches per 24 hours at ⅛" thickness.

For most applications approximately 6 to 8 gallons per square (100 sq. ft.) is recommended.

Colored stone granules or a specially compounded Gilsonite Insul-Mastic Aluminum Spray (both supplied by Insul-Mastic) may be applied to the mastic surface to give color, greater resistance to attack, and deflective properties. (See Colored Surfacing; page 16.)

No. 4010xx vaporseal

This is the same No. 4010 coating but containing much faster drying solvents. It is not recommended where granules or membrane are to be used because of its rapid drying characteristic.

No. 4138 vaporseal

In composition very similar to No. 4010, except that it dries more quickly. It is suitable for application on the same surfaces as mentioned for No. 4010 above. An application of 6 gallons per square will, under favorable drying conditions, be hard enough to walk on in three days. A week's drying time will produce a surface of sufficient firmness to withstand light automobile or truck traffic.

An added coating of granules is essential if subjected to traffic. Many leading railroads follow this practice in sealing and protecting the roofs of their freight cars, with eminently satisfactory results. Otherwise granules or Insul-Mastic Aluminum Spray may be used as described under No. 4010 for decorative purposes.

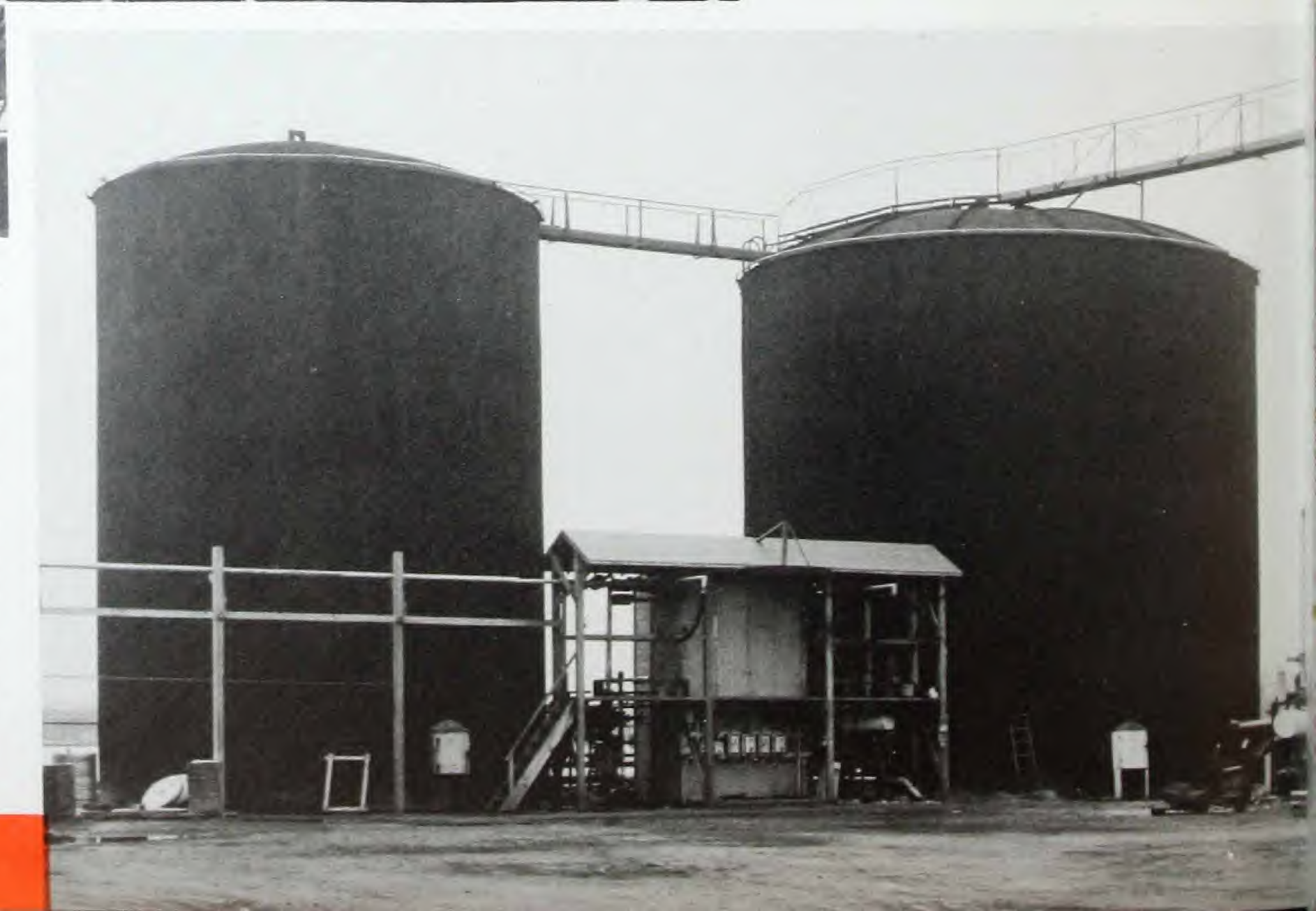
No. 4129 quick drying vaporseal

This material dries in about one-fourth the time required for No. 4010 and one-half the time for No. 4138. It is for use both indoors and outdoors on surfaces similar to those listed for No. 4010, where quickest drying time is essential. Not suitable for the applications of granules. For outdoor applications Nos. 4010 and 4138 will have a somewhat longer life and will be more flexible in cold weather.

NOTE — All the materials in the "Vaporseal Mastics" group possess some insulating and sound deadening qualities. However, the next group called "Insulating Mastics" is specifically designed to incorporate maximum of such qualities.

Think first of the coatings that last!

These thionizers are coated with 1/4" of *Insul-Mastic Type "D"*. This non-absorbent insulation reduces heat losses approximately 65%. The fuel saving alone pays for the coating in a very short time.



In New Haven, Connecticut, these formaldehyde storage tanks of the Excello Corporation are coated with *Insul-Mastic Type "D"*. Because this insulation does not absorb moisture no vapor-seal is required, and there is no corroding of the tanks.

INSULATING MASTICS

No. 553
type "D" insulation

Insul-Mastic No. 553 Type "D" is a mastic having the same chemical resistance as Insul-Mastic No. 4010. It contains a very high percentage of granulated cork, one of the most effective insulating materials. This gives Type "D" the properties of reducing heat loss and controlling condensation in addition to preventing corrosion and providing sound deadening. This means that industry has available a moderate temperature insulation which can be spray applied and is non-absorbent.

This material may be used either inside or outside on walls, ceilings or overall surfaces of buildings, tanks, ducts, pipes, etc. Type "D" may be applied over metal, masonry and ceramic surfaces.

The most efficient and economical thickness of application for Insul-Mastic Type "D" is ¼ inch. This thickness will reduce heat loss through steel plates approximately 65%. Applications to oil tanks requiring steam heat to keep the oil liquid enough to flow, have paid for themselves within a year in reduction of heating costs, according to firms employing Type "D" Insulation.

No mechanical means of attachment are needed. Insul-Mastic Type "D" adheres at any angle of surface without banding. When dry a tenacious bond with the base surface will have developed.

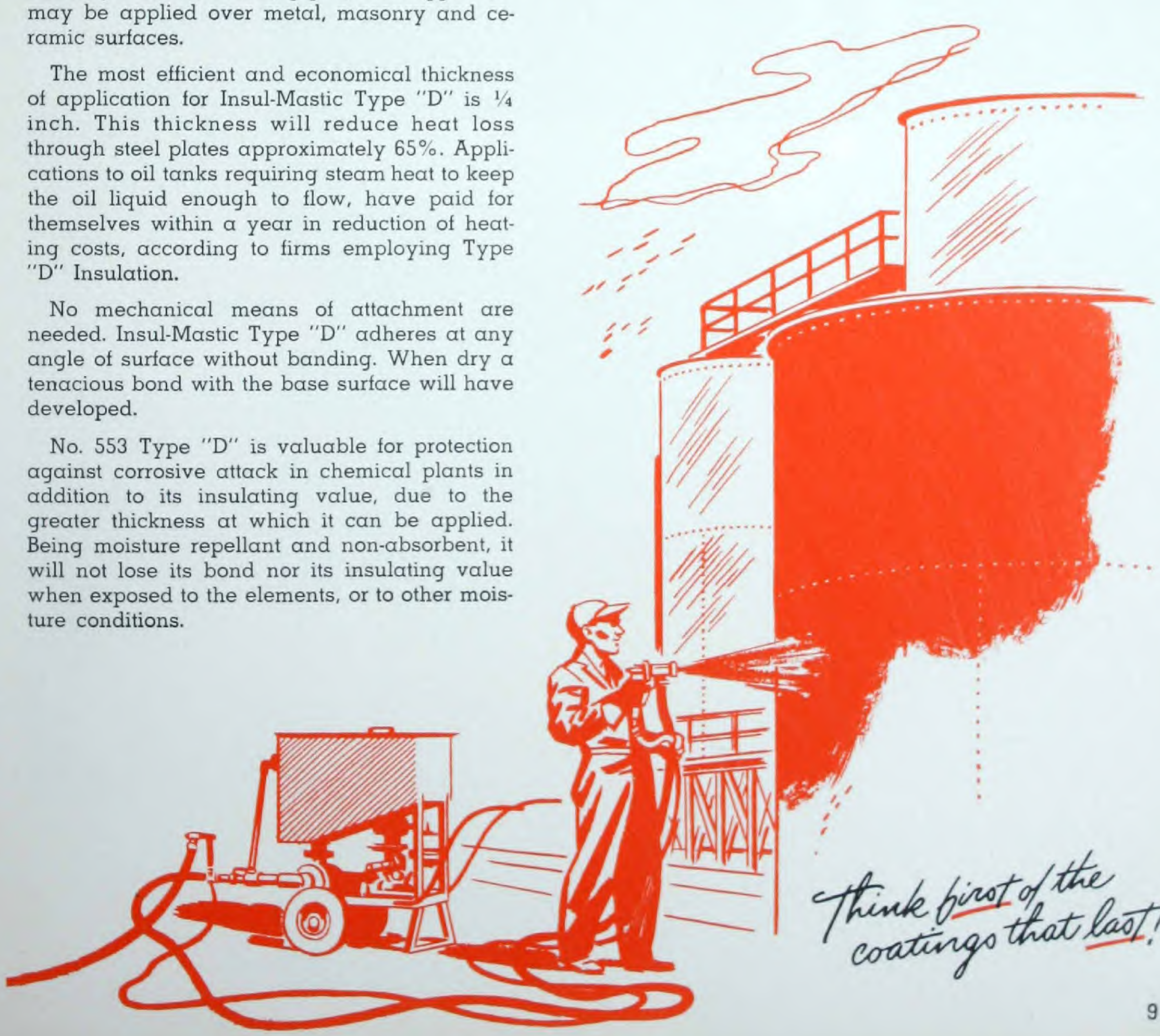
No. 553 Type "D" is valuable for protection against corrosive attack in chemical plants in addition to its insulating value, due to the greater thickness at which it can be applied. Being moisture repellant and non-absorbent, it will not lose its bond nor its insulating value when exposed to the elements, or to other moisture conditions.

For decorative purposes or to reflect the sun's heat Type "D" may be given a coating of Insul-Mastic Aluminum Spray No. 4604-E. Or it may be given a top coating of Insul-Mastic No. 4010 and colored granules.

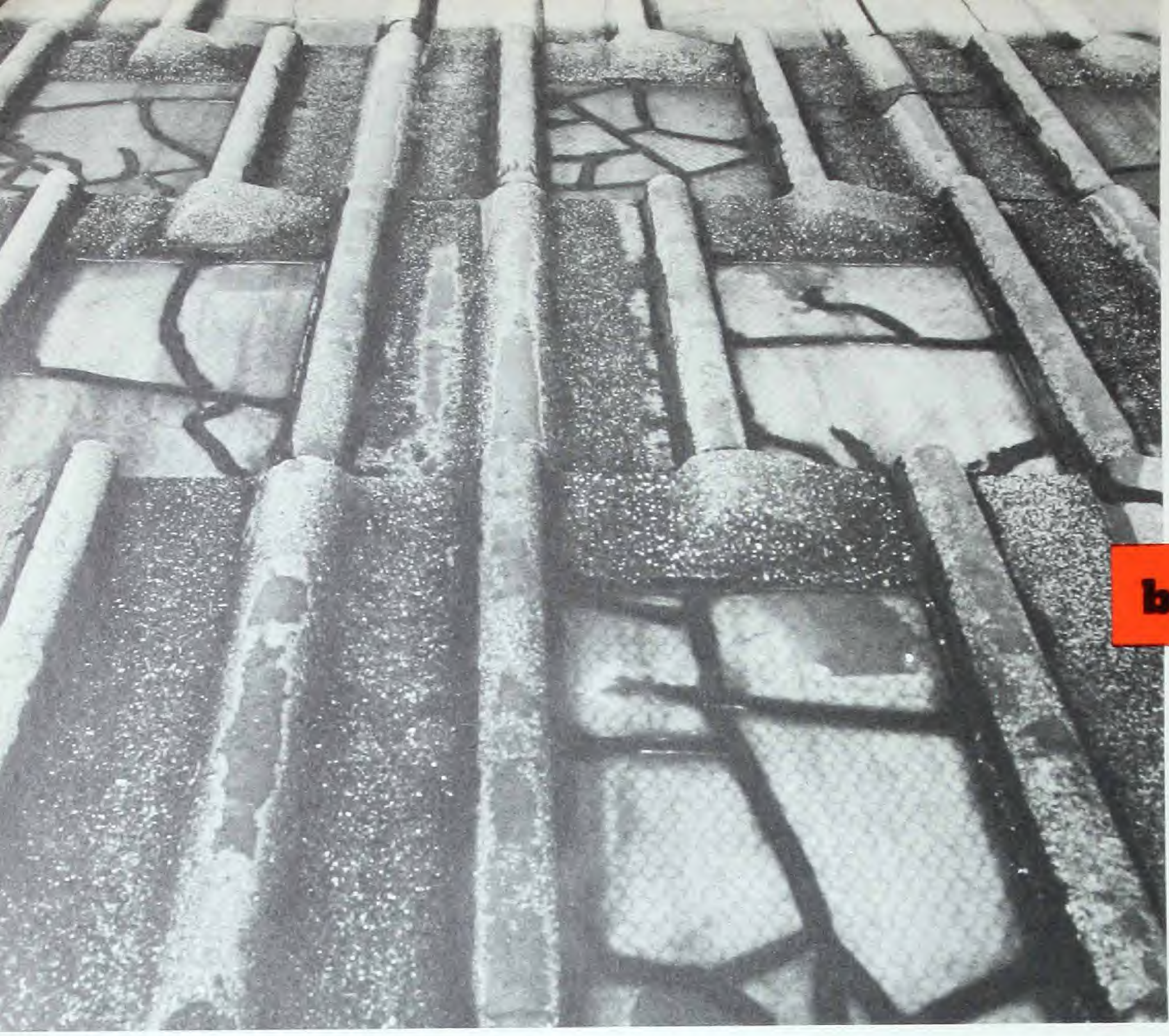
Type "D" retains its full efficiency throughout temperatures ranging from —40° F. to 300° F.

Here are the quantities of Insul-Mastic Type "D" required to obtain coatings of different thicknesses when coating is wet.

¼ inch—20 gal. per 100 sq. ft.
⅜ inch—30 gal. per 100 sq. ft.



think first of the coatings that last!



before

In Detroit a leading automobile manufacturer was troubled with a twenty-three year old tile roof. Glaze had worn from the tile causing it to become porous. Skylights of reinforced glass set in the tile to admit light had all been cracked. The bad tile and glass caused the roof to leak and interfered with production.

after

Glass skylights were covered with sheet steel. Joints and cracks were membraned with Glasfab. The entire roof was then coated with *Insul-Mastic* and red granules. This entire operation was undertaken and completed without interfering with production within the building.

ROOFING MASTICS

No. 4005 vaporseal

No. 4005 is designed for heavy application to clean sloping metal roofs. This Insul-Mastic coating gives many years of protection against the penetration of water and against the rusting and corroding of the metal. It is applied directly and bonds tightly to the roof.

Over surfaces that are liable to develop structural cracks strips of Glasfab, a woven fabric of glass threads, should be used on the sections where stress is liable to occur. In some cases it may be advisable to use an overall membrane of Glasfab. The membrane is first imbedded into a light tack coat of Insul-Mastic. A normal coat of Insul-Mastic is then applied over this.

Over vertical or nearly vertical steel or other metal surfaces, the maximum advisable thickness with No. 4005 is from 3½ to 4 gallons per square, depending on the temperature prevailing at time of application. The higher the temperature, the thinner the mastic must be applied to prevent running or sagging, and vice versa.

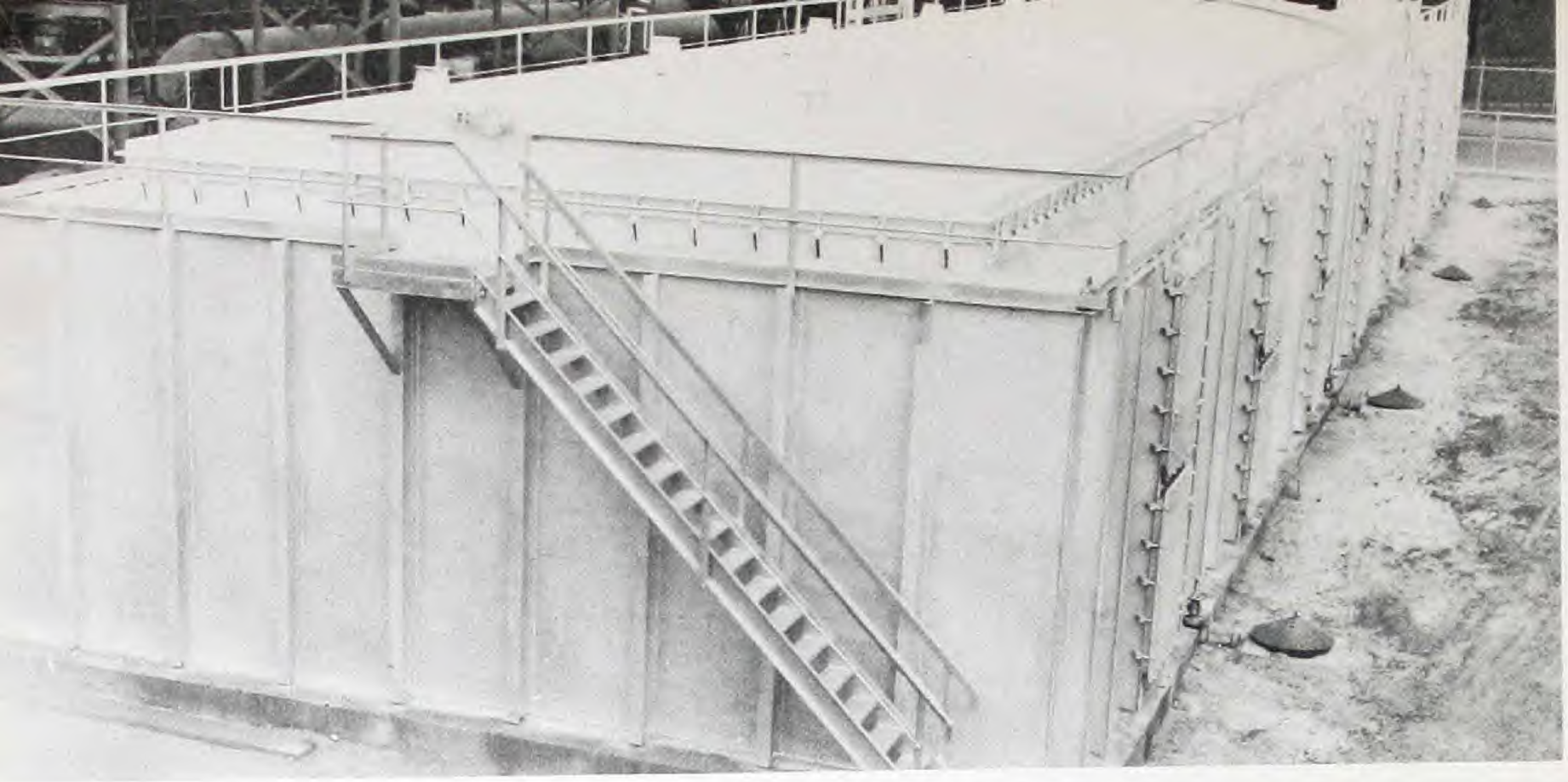
On 25% to 60% slopes, it is possible to apply No. 4005 without danger of running or sagging at the rate of 4 gallons per square. When used with a Glasfab membrane over roofs of such pitch 5 gallons per square should be used. First apply about 2 gallons per square, into which the membrane is laid. Then cover Glasfab with about 3 gallons per square.

No. 4122 vaporseal

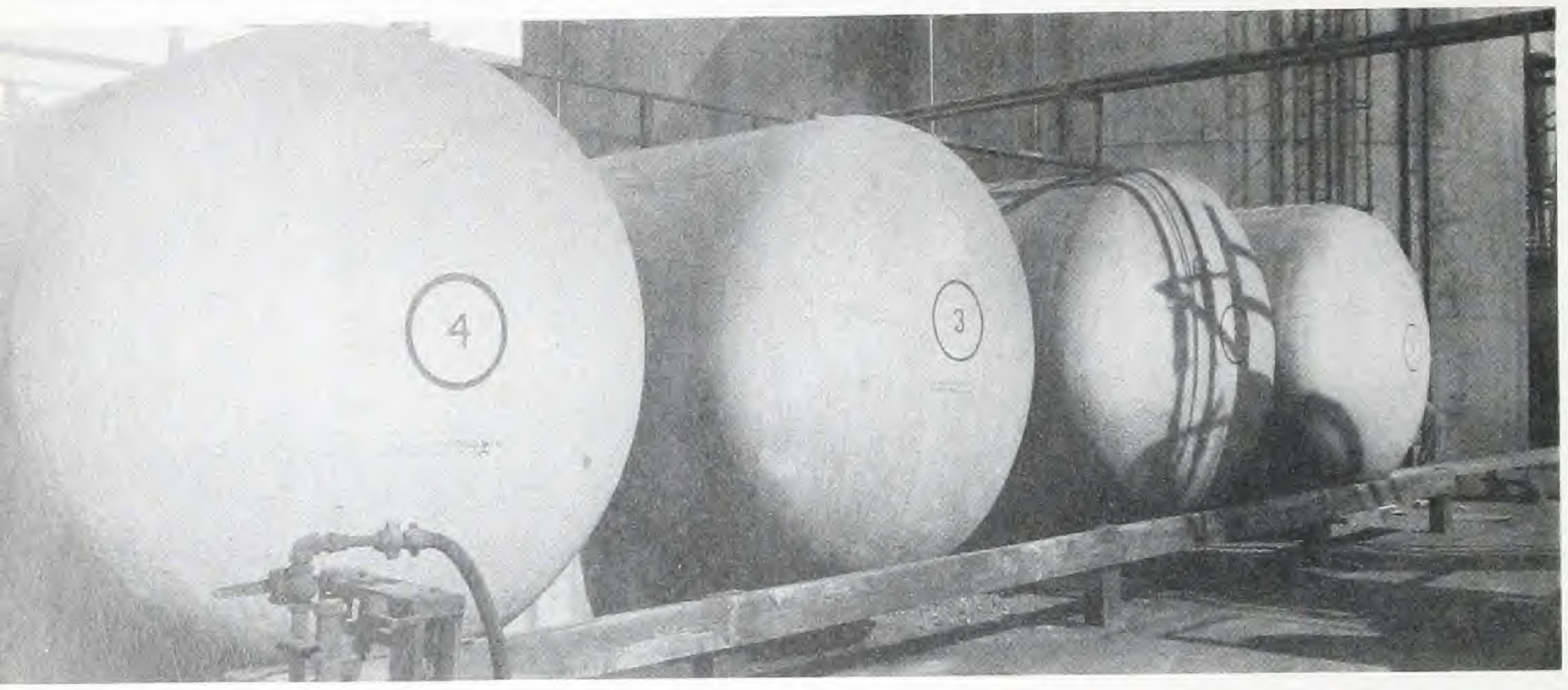
This is an impervious, water repellant mastic of still lighter consistency than No. 4005. It is designed for application to metal roof surfaces with slopes less than 2 inches per foot, where the heavier coating is not necessary. It may be applied to such surfaces by mopping or brushing, although better results are usually obtained by spraying.

On horizontal surfaces or near-horizontal slopes the mastic may be applied to a thickness of 3 gallons per square. Where a glass membrane is to be used, first apply about 1 gallon per square under, and 2 gallons per square over the Glasfab.

The completed roof of the automobile plant. As attractive as ever and having a life expectancy equal to that of the original tile roof. The resurfacing was done at half the cost of a new roof.



In Camden, New Jersey, gas for cooking and heating is purified in this huge metal box. It is insulated with *Insul-Mastic Type "D"* and given a bright finish with *Insul-Mastic Aluminum Spray.*



These purified acid storage tanks at the Calco Chemical Division of the American Cyanamid Company in Bound Brook, New Jersey, are coated and insulated with *Insul-Mastic Type "D". Insul-Mastic Aluminum Spray* further insulates by deflecting the sun's rays.

A building of the Black and Decker Manufacturing Company, well known electric tool makers. Gray stone granules imbedded in a coating of *Insul-Mastic Vaporseal* give a pleasing finish.

One of the best known Insul-Mastic jobs. B-29 bombers were preserved after World War II by a coating of *Insul-Mastic Vaporseal* over a strippable vinyl film. *Insul-Mastic Aluminum Spray* gave further protection by deflecting sun's heat.

MISCELLANEOUS MASTICS
and associated coatings

No. 507—Black "Mineral Rubber" Caulking Compound

This is a Gilsonite mastic material of highest quality, cut back with solvents to a troweling consistency. It bonds securely to clean, dry metal, asphalt, cloth, wood, paint, brick and cement. It can be troweled or applied with any standard caulking gun. It forms a durable elastic vaporseal which is acid, alkali, and weather-resistant.

No. 524—Gilsonite Mastic Cement

This Insul-Mastic material is used as a tile cement and asphalt adhesive. One of its particular uses is to glue down roll roofing. There are many other similar uses—including caulking. However, No. 524 is not as satisfactory caulking material as is No. 507 since it dries harder and has less elasticity. Insul-Mastic No. 524 is supplied in troweling or brushing consistency.

No. 4132—Gilsonite Primer

Gilsonite primer is designed especially for preparing dusty or very porous masonry surfaces for a coating of Insul-Mastic. No. 4132 is not recommended for metal surfaces. One gallon will cover from 100 to 400 sq. feet depending on the porosity and roughness of the surface.

No. 5132—Gilsonite Quick Drying Brushing

This material is for brushing on steel to provide short term protection — 6 months to one year under normal conditions.

No. 4029—Gilsonite Thinner

Gilsonite Insul-Mastic materials are made in two consistencies, one for summer and one for winter. They should be applied as received to obtain best results. However, if thinning becomes necessary use this material. It has the proper blend of Gilsonite, asphalts and solvents to be properly compatible with other Gilsonite Insul-Mastic materials. In no case should thinner in excess of 5% of the material volume be added.

No. 4604-E—Insul-Mastic Aluminum Spray

This aluminum coating is designed for application over Insul-Mastic industrial coatings for decorative or reflective purposes. It can be applied as soon as the mastic coating has had sufficient time to set. Insul-Mastic Aluminum Spray is compounded of the same basic material as the Insul-Mastic coatings so that it will be compatible with the under coating. It contains 3.4 pounds of aluminum per gallon which is much above average for aluminum finishes. This provides an unusually bright and lasting finish. The reflective index is 65% to 75%.

The coverage of 4604-E is about 200 sq. feet per gallon depending on the roughness of the surface over which it is applied.

NOTE—When Insul-Mastic No. 553 Type "D" is used for reduction of, or prevention of, condensation, and a colored decorative surface is desired, the use of paints especially fabricated for asphalt surfaces is recommended.

No. 4517—Gilsonite Insul-Mastic Karkote

Karkote is designed for use on the underside of automobiles and other vehicles. It protects the under parts from rust, abrasion and corrosion, deadens sound of squeaks, motor and traction, improves the floor seal against fumes and road dust, improves riding comfort by providing a feeling of greater firmness and solidarity, and promises greater resale or trade-in value.

Karkote is a very fast drying mastic. It is spray applied in one application. About five to ten gallons of mastic are used on standard model cars, giving a coating from 1/16" to 1/8", the amount used being governed by the size of the car and the thickness of the coating desired.

think first of the coatings that last!

Buttering a block of rigid insulation with *Insul-Mastic Weather-Sealing Cement No. 5126 Z.* The smooth spreading mastic will not roll or cling to the trowel. It will hold the insulation in place until banded and will prevent moisture from collecting behind the blocks.

INSULATION CEMENT

No. 5126 "Z" Weathersealing Cement

An entirely different type of sealer for thermal insulation. This mastic was formulated at the request of a large chemical processing company to overcome the difficult problem of using cutback asphaltic sealers with thermal insulation.

It has been accepted after many years of testing and field applications that a cutback asphaltic mastic, that is, a mastic that would be thinned with a solvent such as petroleum or coal tar distillates, gives greater protection against corrosive conditions and has better physical properties than any emulsion or dispersion. However, when applied by trowel or brush, they dragged on the trowel, were tacky to handle and, as a rule, would not dry to a smooth surface.

Insul-Mastic No. 5126 "Z" was designed to overcome these objectionable features of difficult trowel application, and at the same time, retain the seal and low Moisture Vapor Transmission typical of Insul-Mastic No. 4010.

The prime use for this Insul-Mastic coating is as a sealer for the backs and sides of various types of thermal insulation when used for moderate temperatures. It is applicable to cellular glass, cork or other rigid or semi-rigid insulations. No. 5126 "Z" is applied to the back and edges to hold the block or covering in place during erection. When the block is coated with Insul-Mastic No. 5126 "Z" and pressed onto the surface, it will be held in place without sagging until it has been banded or otherwise permanently fastened in place. When set, it becomes a pliable vapor barrier that will not become brittle at temperatures as low as —40° F., nor will it soften at temperatures up to 240° F. Thus it prohibits the entrance of water in the form of either vapor or moisture.

This mastic is remarkably easy to apply by trowel. Due to its unsual buttery consistency, it is easily leveled off to a smooth uniform film by a single swipe of the trowel. It will not cling to the trowel to cause rolling, or films of uneven thickness. It is a cutback mastic that really is a pleasure to apply.

The mastic is generally trowel applied to approximately 1/16" in thickness thus providing a positive seal and an expansion joint which will prohibit abrading of the insulation. The amount to be applied to the back of the block will depend on the contour of the block itself in respect to the contour of the surface to which the insulation is to be applied.

The few other comparable materials now available and used for a similar purpose are based on strategic resins and are considerably more costly, as well as more difficult to apply.

With the edges and back sealed, the insulation is set in place. The only materials similar to this easily spread adhesive and sealer are resins which are much more costly.

COLORED SURFACING

Several types of colored surfacing are available for use over Insul-Mastic, if the black finish is not desired. The selection between them depends upon the particular purpose to be attained.

Insul-Mastic Aluminum Spray—No. 4604-E

If the maximum of deflective properties is desired to ward off the sun's rays this material is recommended. As stated on page 13 it is compounded specifically to provide proper compatibility with Insul-Mastic coatings. As supplied by us it is laden with a high percentage of aluminum flake and has a high reflective index. Its durability is dependent upon the conditions to which it is subjected. Its use tends to lengthen the life of the mastic under it by protecting it from the actinic rays of the sun.

Granules

An attractive finish can be obtained by spraying colored stone granules into a fresh Insul-Mastic coating. The granules adhere to and cover the wet, black mastic with rich solid colors or pleasing combinations of selected colors. Available shades of granules are: light gray, dark gray, cream buff, green, red, blue, shell white and aluminum (silver).

Granules will provide a durable finish, resisting abrasion as well as acid and alkali attack. They also give added life to the mastic coating by protecting it from the actinic rays of the sun. To obtain light finishes on side walls blends of granules incorporating ½ light gray or white and ½ other light colors, or ⅓ light gray or white and ⅔ other light colors are recommended.

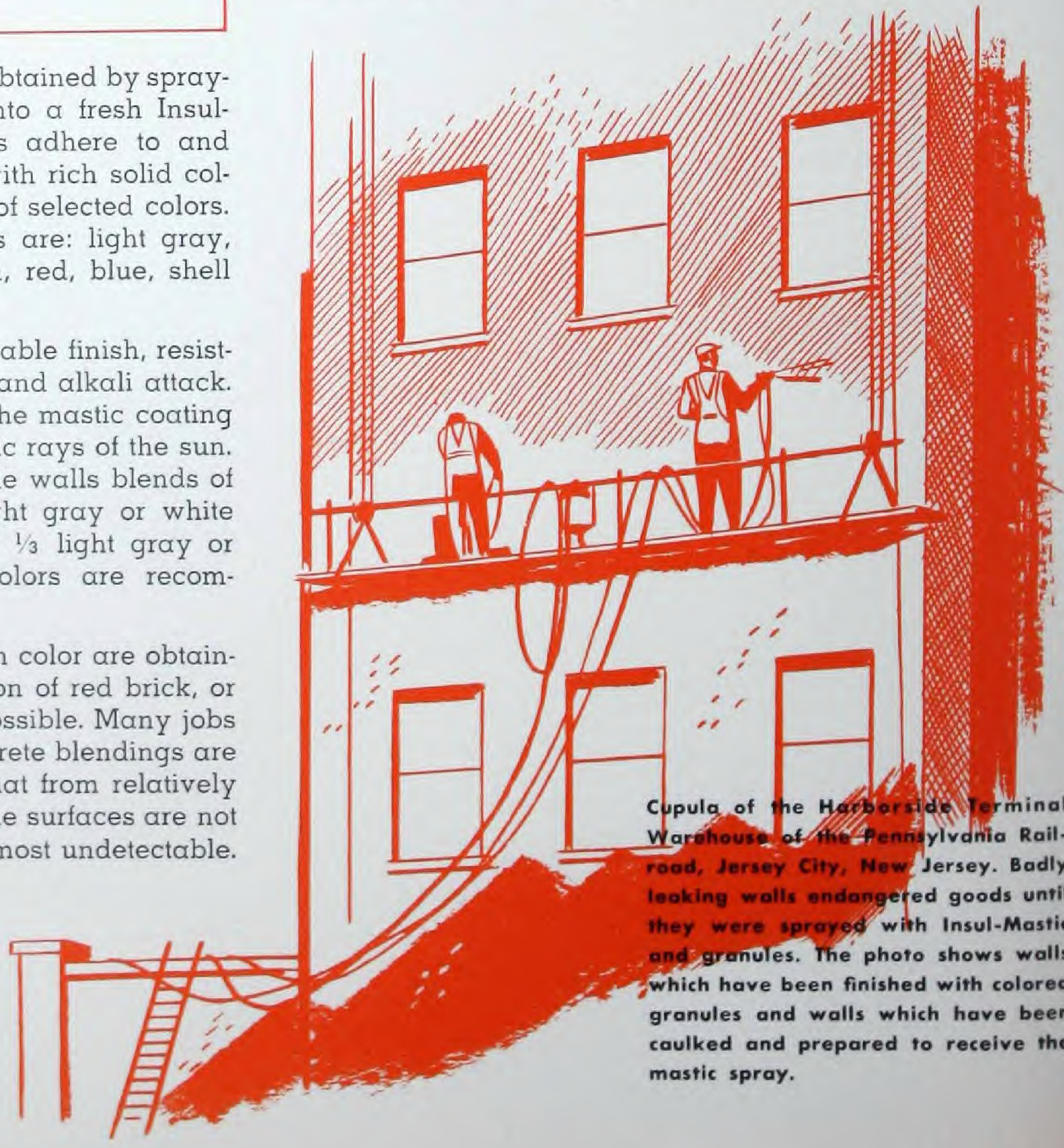
Many pleasing variations in color are obtainable from blending. Simulation of red brick, or concrete color surfaces are possible. Many jobs using simulated brick or concrete blendings are sufficiently natural looking that from relatively short distances the fact that the surfaces are not natural brick or concrete is almost undetectable.

White Casein Paint

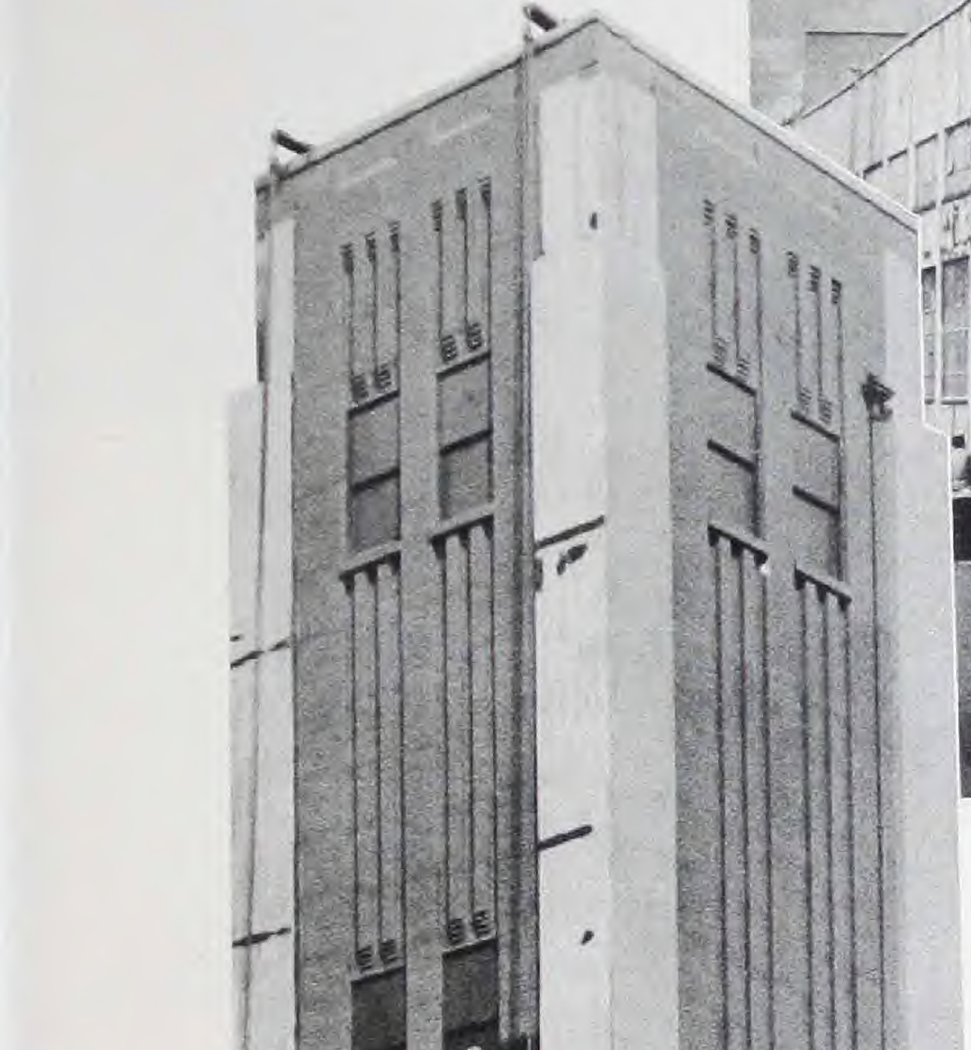
For interior application white or other light colored casein paints or water dispersed coatings may be applied directly over Insul-Mastic.

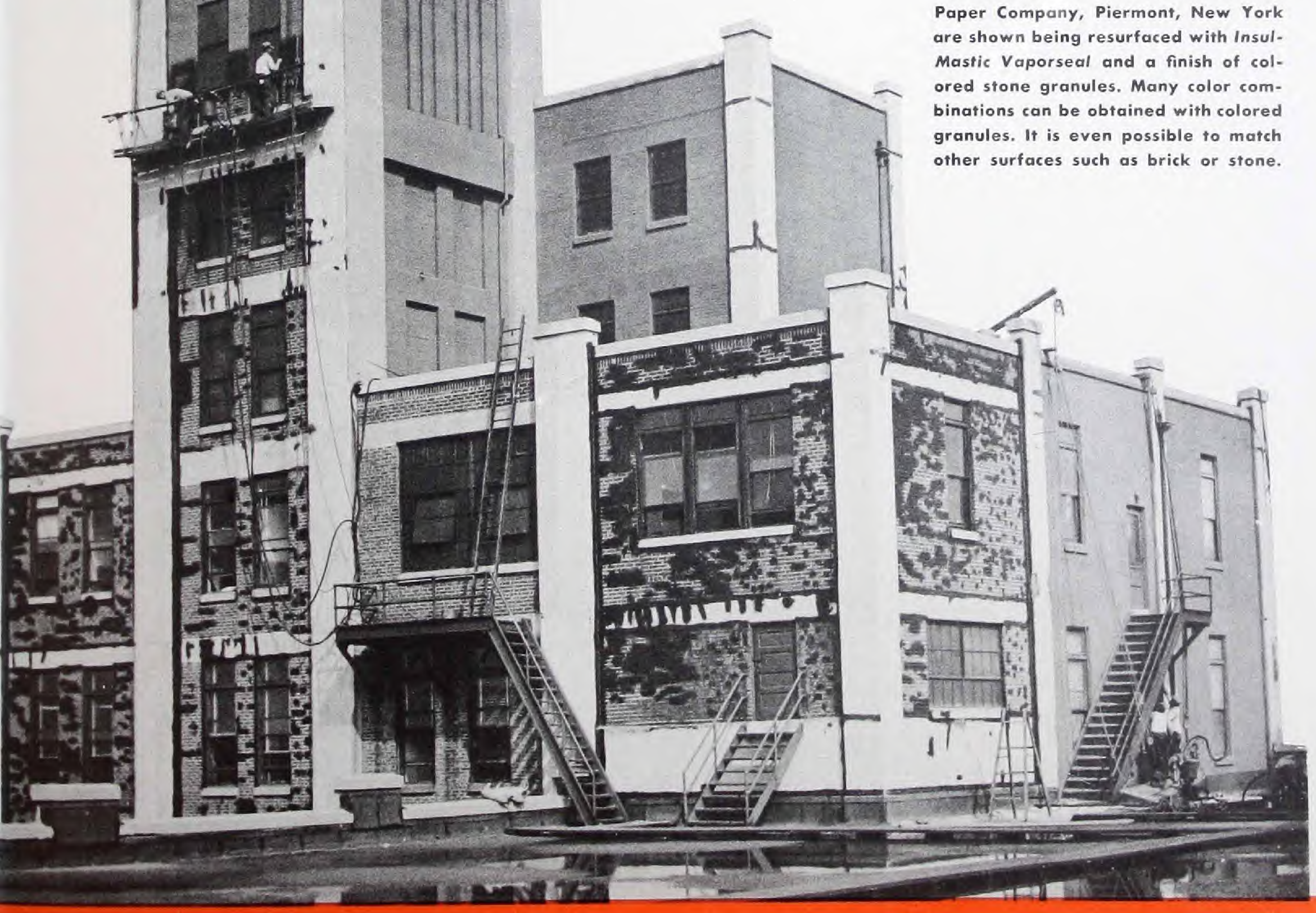
Other Colored Surfacings

Alcohol soluble paints, lacquers, or some synthetic resin paints may be applied directly over Insul-Mastic when thoroughly dry. The use of oil base paints is not recommended since the oil may attack the surface of the mastic and cause it to bleed through the colored paint.



Cupola of the Harborside Terminal Warehouse of the Pennsylvania Railroad, Jersey City, New Jersey. Badly leaking walls endangered goods until they were sprayed with Insul-Mastic and granules. The photo shows walls which have been finished with colored granules and walls which have been caulked and prepared to receive the mastic spray.





Deteriorated walls of the Robert Gair Paper Company, Piermont, New York are shown being resurfaced with *Insul-Mastic Vaporseal* and a finish of colored stone granules. Many color combinations can be obtained with colored granules. It is even possible to match other surfaces such as brick or stone.

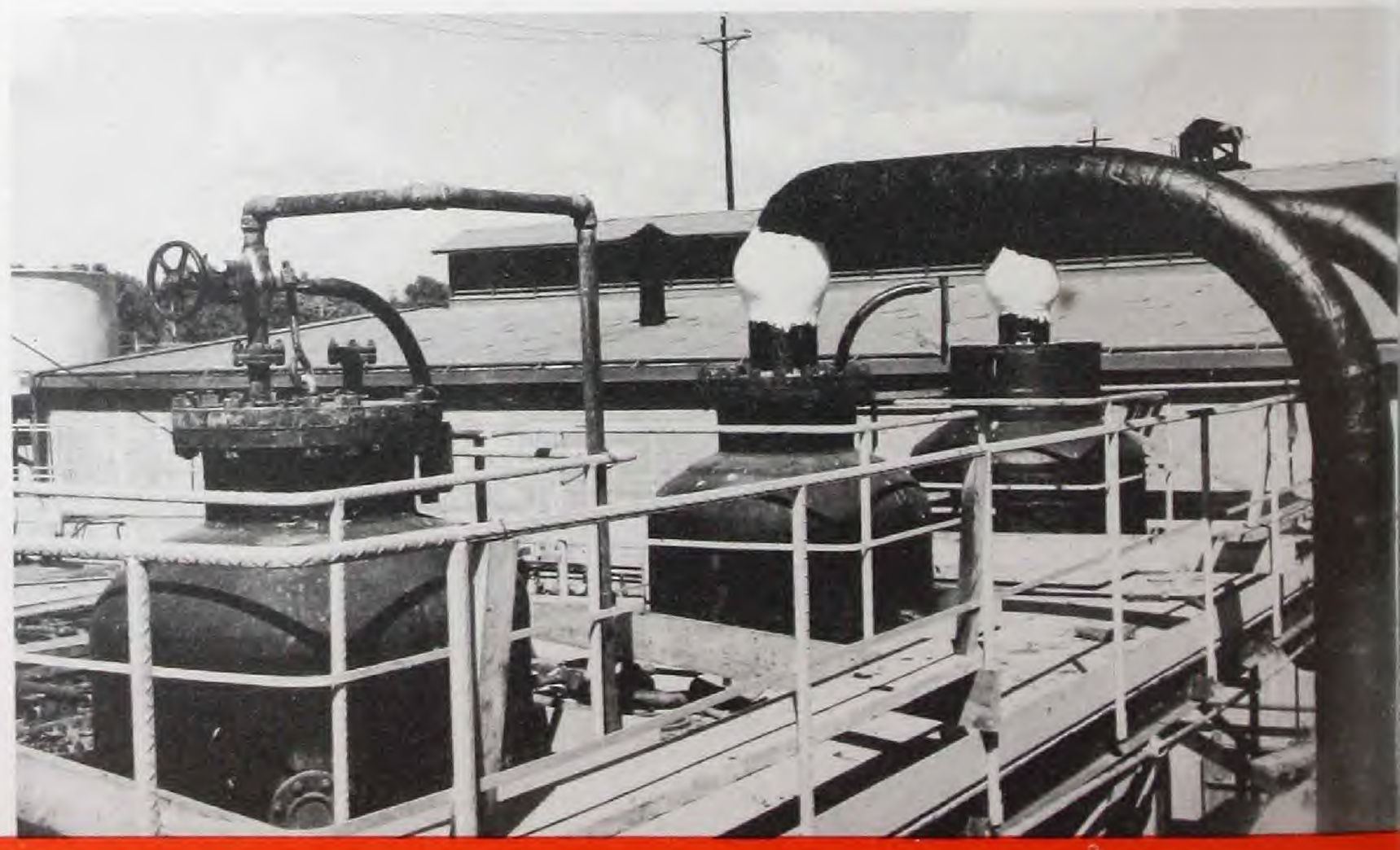
Excessive fuel consumption and other signs of inefficient operation led to an investigation at this great oil refinery.

Because of an inadequate weather-seal these towers in Texas also rusted. All insulation was replaced, either with *Insul-Mastic Type "D"* or standard insulation plus *Insul-Mastic Vapor-seal.*

Insulation was removed from vessels and a thick layer of rust was found. The insulation had absorbed moisture through an inadequate vapor-seal.

Besides being wet and useless, the insulation was rusting the vessels. Here part of the heavy crust of rust still clings to a piece of the insulation.

Chemical vessels and pipes in various stages of being insulated. Notice that the insulation is being immediately covered with *Insul-Mastic* to protect it against abrasion and weather.



Here is shown the thickness of the rust. All insulation had to be removed and the vessels sand blasted. *Insul-Mastic Type "D"*, the non-absorbent insulation, or *Insul-Mastic Vaporseal* over standard insulation were then applied.

weathersealing insulation with INSUL-MASTIC

Improperly coated insulation can soon become watersoaked. Rain or moisture vapor can penetrate an inadequate coating and turn the insulation into a sopping wet blanket which is held against the sides of a vessel. Rusting of the vessel starts immediately and remains undetected beneath the insulation. In many cases serious damage is caused before there is any suspicion of trouble. Only after excessive heat loss sends fuel consumption upward, or insulation falls from the tank or tower is an investigation made. By that time the corrosion has deeply pitted the vessel and imperilled production.

This danger of moisture penetrating the coating and soaking the insulation beneath it is not limited to vessels exposed to the weather. Moisture vapor as well as rain can cause rust, and the penetration powers of the vapor are far, far greater. Moisture vapor cannot be stopped by a roof, and many vessels inside a plant, as well as those outside, must be protected against this force.

Moisture vapor will penetrate insulation and condense upon a pipe, duct or tank if that vessel is operating below the dew point. This generally applies to vessels operating at temperatures lower than the ambient. However, vessels which normally operate in the atmospheric or higher temperature ranges are subject to moisture vapor condensing upon their sides when they are shut down. This moisture may be driven off when the vessel is again heated, but if rust has already had a start it will continue to spread.

Both moisture and moisture vapor can be prevented from watersoaking your insulation by the application of an Insul-Mastic coating over the insulation. A 1/16" to 1/8" coating and a membrane is generally recommended. Insul-Mastic is flexible and resilient enough not to crack on drying or because of extreme temperatures. Nor will there be any excessive shrinking or alligatoring since Insul-Mastic contains only a minimum of solvents.

These are part of the faculties which make Insul-Mastic an excellent moisture barrier. Others were determined by a laboratory working for the United States Government in seeking a coating to vaporseal the giant bombers, naval guns and other implements of war which were packaged in sprayed plastic and stored after World War II. This laboratory determined that Insul-Mastic's resistance to the highly penetrative moisture vapor could be stated in terms of .01 grams of moisture penetration per 100 square inches, per 1/8" thickness per 24 hours. Insul-Mastic was selected on the strength of this finding to vaporseal the plastic packages enclosing the bombers and guns.

Insul-Mastic was the only coating which was ever approved under the original specification for this project.

When using Insul-Mastic coatings to seal insulation against rain and moisture-vapor it is highly advisable to use a membrane of Glasfab to increase the resistance of the coating to rupture or puncture.

Non-absorbent insulations such as cellular glass will not become watersoaked. However, these are supplied in block form and the joints between each block will permit moisture to come into contact with the vessel being insulated unless they are properly sealed.

To insure a good seal between blocks of non-absorbent insulation Insul-Mastic 5126 "Z" Weathersealing Cement should be used. Then an over-all coating of Insul-Mastic should be employed to protect brittle surfaces such as cellular glass.

Although this section is concerned with the weathersealing of absorbent insulations, it should be pointed out that Insul-Mastic Type "D" is a non-absorbent insulation and requires no weatherseal coating.

think first of the coatings that last!

When Insul-Mastic is applied over joints, cracks except minor hairline cracks and other points of stress or strain, a membrane of woven glass cloth is necessary. Insul-Mastic recommends that you use either Glasfab or Insul-Mastic Glass Membrane. Glasfab has a sizing of Gilsonite which gives it a black color, and Insul-Mastic Glass Membrane is white due to a sizing of vinyl plastic. This makes the latter suitable for use with the white Insul-Mastic coatings described on page 38.

Glasfab and Insul-Mastic Glass Membrane are evenly woven in an open mesh. This gives greater strength than the mat type of membranes in which the fibres are not interlocked. The latter are merely pressed on top of each other and held by a binder. This is necessarily an overall binder which would prevent the Insul-Mastic from penetrating the membrane and forming a bond with the tack coat. Since the woven membrane has an open mesh, the coating does penetrate it and key itself.

The itching of the skin which comes from handling some mat type membranes is not present in Glasfab and Insul-Mastic Glass Membrane. To the touch they resemble a course cloth.

There is a great difference, however, between these glass membranes and cotton, jute or other organic fabrics. Because the glass fibers are inorganic they will not rot or wick. For this reason they retain their original strength for the life of the application.

The strong glass threads of Insul-Mastic Glass Membrane and Glasfab resist wear and tear caused by expansion and contraction. Repeated flexing may break weaker threads or those which have started to rot, but glass fibers are not effected in this manner.

Wicking or capillary action is another fault of organic fibers. These hollow fibers carry the volatile oils of the coating to the surface where they dry out. Conversely, organic fibers will carry moisture, like a wick, down into the coating and rot the fabric membrane. Glasfab and Insul-Mastic Glass Membrane do not possess this characteristic.

A light tack coating of *Insul-Mastic* being sprayed over insulation. This is to hold the Glasfab membraning cloth which will be imbedded into it.

***Glasfab* being pressed into the mastic. It will absorb stress at the joints caused by movement of the vessel, and on less rigid insulation it will form a firm base for *Insul-Mastic*.**

MEMBRANING

SPECIFICATIONS
FOR GLASFAB AND INSUL-MASTIC GLASS MEMBRANE

		MAXIMUM	MINIMUM
1. Width—36" roll		37½"	35½"
2. Selvedge		⅛"	No selvedge
3. Weight per roll (100 yard roll standard)		12 lbs.	8 lbs.
4. Weight per sq. yd.		1.9 oz.	1.3 oz.
5. Minimum strength (grab method)			
a. Direction of the warp	50 lbs.		
b. Direction of the fill	50 lbs.		
Average strength (grab method)			
a. Direction of the warp	77 lbs.		
b. Direction of the fill	77 lbs.		
6. Volatile matter at 105° C. (221° F.)		2.2% average	
7. Pliability at 0° C. (32° F.) Cracking or bending over a 1/32-inch mandrel through an arc of 180° in one direction and then through 360° over the same mandrel in the opposite direction.		Satisfactory	
8. Average weight of moisture-free unsaturated fabric per sq. yd.		1.7 oz.	1 oz.
9. Ash of moisture-free fabric		Incombustible	
10. Thread count per inch—Warp		24	16
Fill		24	16
11. Glass fiber content		All glass fiber continuous yarns as manufactured by Owens-Corning Fiberglass Corp.	
12. Weave		Weave must be uniform in density of yarn per sq. yd. Distortion must be kept to a minimum and must be uniform when present.	
13. Saturant		Saturant must be of wholly inorganic, rot and vermin proof substance.	

Glasfab and Insul-Mastic Glass Membrane possess the highest strength-to-weight factor of any material used for water repelling membrane specification work. With the warp, the strength factor of these membranes is 77 lbs. per inch wide strip and with the fill, 77 lbs. per inch wide strip. Thread count is 24 threads per inch for both warp and fill.

In weight, Insul-Mastic Glass Membrane and Glasfab offer definite advantages in handling. A 50 sq. yd. roll weighs only 6 lbs. while a 50 sq. yd. roll of organic fabric averages better than 38 lbs. or more than 6 times as much. These glass fabrics weigh 1.9 ounces per sq. yd. The pick-up factor, when fully loaded, is 424 per cent.

Glasfab and Insul-Mastic Glass Membrane were developed after intensive research and experiment. The basic yarns are produced by the Owens-Corning Fiberglas Corp., manufacturers of Fiberglas yarns.

application of

The effectiveness of a protective coating depends, to a large degree, upon the method employed to apply it. The advantages of the sprayed application over a brushed-on application, are twofold: the sprayed application results in a heavy coating—that follows the contour of the surface with even thickness, regardless of depressions, projections, curves or angles; the brushed-on application inevitably skimps the high spots.

Since there existed no paint spraying or other spraying equipment for efficient application of products of such highly viscous consistencies as Insul-Mastic, special equipment had to be designed for this purpose. The problems presented were numerous and difficult, and the

Proper surface preparation is observed by Insul-Mastic licensees. Here badly rusted structural steel in the acid area of a steel mill is cleaned by sand blasting. Where corrosive chemicals exist in the air, such as here, a primer should be applied immediately after cleaning. The second photo shows the spraying of *Insul-Mastic*. Notice the deep pits left in the steel by the rust.

INSUL-MASTIC

present degree of perfection was reached only after a considerable number of years of experience in application, accompanied by prolonged experiment and research.

More recently, however, certain pump manufacturers have incorporated Insul-Mastic requirements and specifications into their pumps. These are reciprocating pumps, and some of them are now approved by Insul-Mastic for use in applying our coatings.

The present type of Insul-Mastic spraying machine most frequently used is very compact, weighs only about 350 pounds, and embodies many special and patented features, making possible continuous and rapid application with a crew of two, three or four men, depending on the nature of application.

For granule application, a special granule machine, with necessary accessories including hose, nozzle and controls, is furnished.

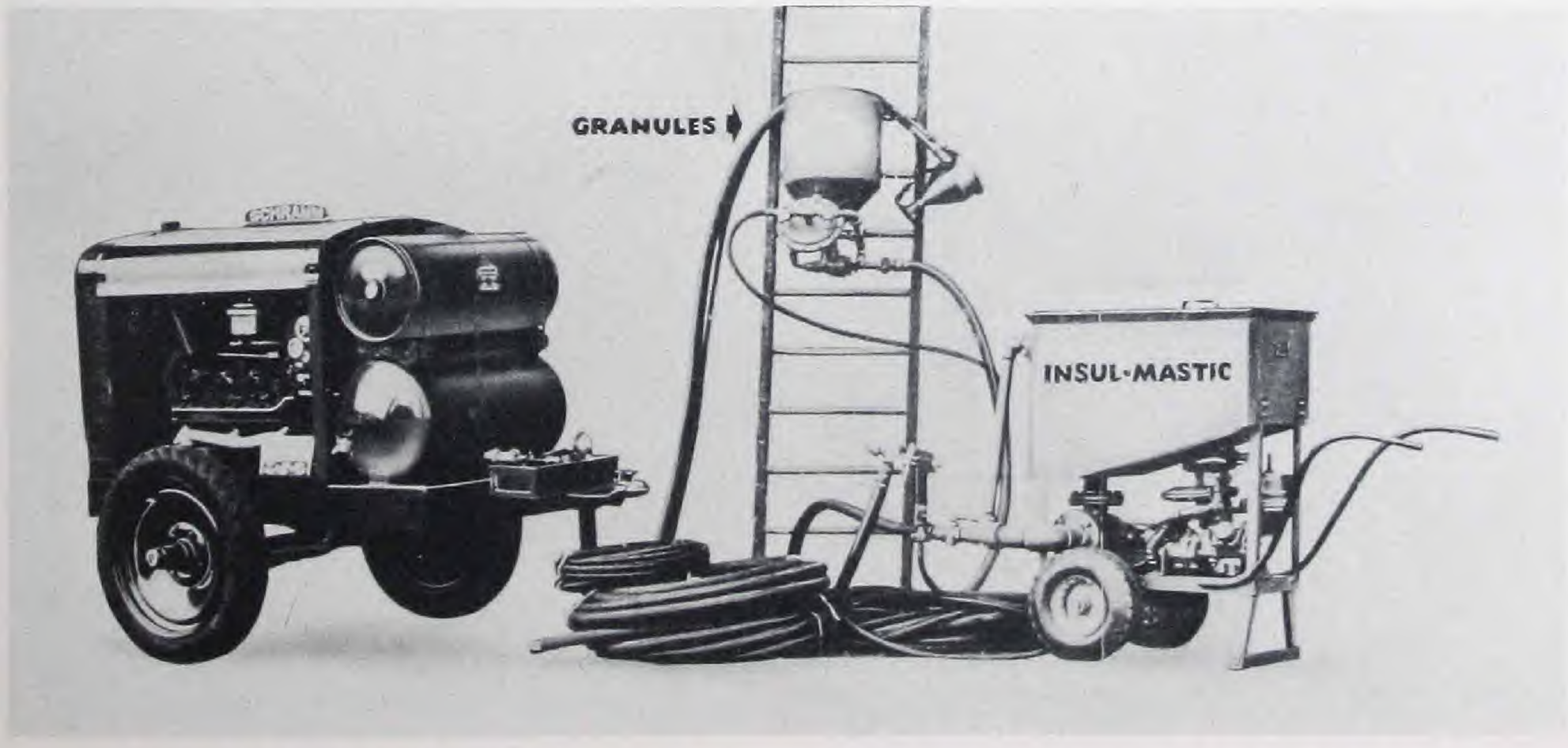
In manufacturing plants and on buildings, generally two men are sufficient, one for supplying materials to the hopper and assisting the sprayer, the other for operating the spray gun. Where scaffolding is necessary, three men are required for greatest output per man per day. Where it is desired to spray a dense layer of granules into the still wet Gilsonite coating to give color and added protection against weather, wear, and chemical attack, four men are required to produce the lowest unit cost of application.

The point to bear in mind is that the spray operator should at all times have sufficient assistance to enable him to keep spraying with the least interruption. Where this is done, it is possible to cover as high as 20 squares per 8-hour day with one machine, or about 2.5 squares per hour, under ideal conditions. On factory production jobs rates of application as high as 48 squares per day have been maintained.

Where compressed air is not available on the premises, a compressor will be needed. The size required will depend on the work to be done. Those supplying 60 cu. ft., 85 cu. ft., or 105 cu. ft. are normally used.

The Insul-Mastic Corporation is prepared to furnish spraying machines on a rental basis for the application of Insul-Mastic products. The machines are never sold outright, but the rental is fixed at figures barely sufficient to amortize their cost. The company will also furnish, on a cost basis, competent instructors or inspectors, expert in the operation and maintenance of the spraying equipment.

In localities where the company has established agents or licensees, the latter are prepared to undertake application, furnishing all the material, machines and men required.



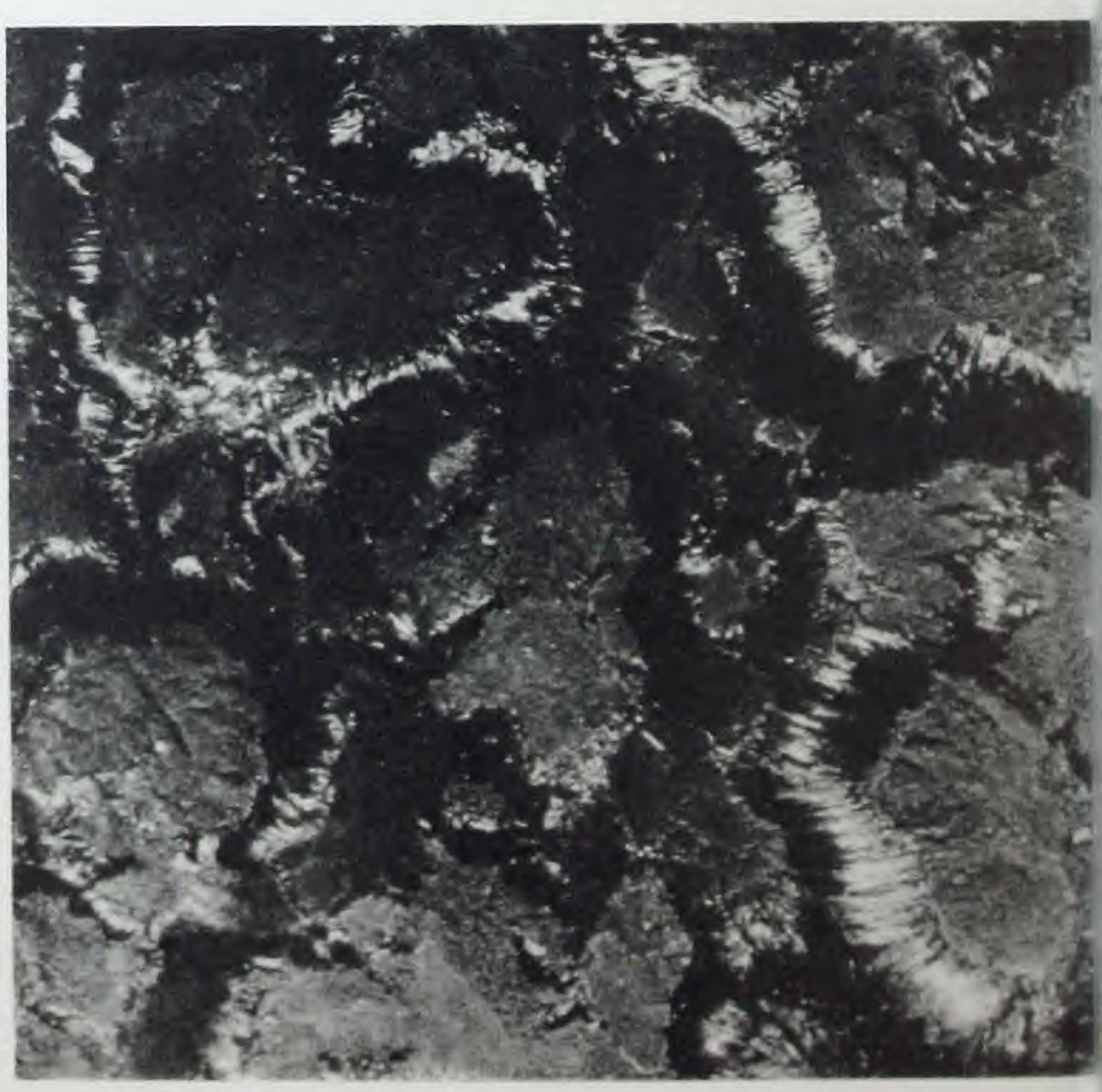
Left: The Insul-Mastic patented spraying machine complete with material hose, air hose and spray gun.
Center: Typical 60 cubic foot air compressor which operates the spray machine and gun.
Right: The hopper, hose and long spray nozzle used when applying colored granules over Insul-Mastic.

the composition of INSUL-MASTIC

The raw materials used in the Insul-Mastic formulae were chosen because of their particular individual properties of resistance to destructive elements. Those of you who want to prolong the life of structures and equipment by using protective coatings want to know the facts about these properties of the raw materials as well as the finished product. You will want to know the details of the coating's behavior upon exposure to air, moisture and actinic rays of the sun. You will be interested in its reaction to high and low temperatures; and exposure to fire or flames. Of vital importance to you is the effect of acids and alkalies contained in the atmosphere or in solutions with which the coating may come in contact. You will want to inquire into the flexibility of the product, its liability to checking and cracking and its bonding properties when applied to different base materials. Finally you will inquire into the cost both of the coating material itself and of its application to the surfaces to be covered. As to service conditions in chemical and other industrial plants, there are so many variables and so many unknown factors that laboratory or accelerated tests are of value mainly in showing relative performance of different materials under a given set of conditions.

Service conditions vary to such an extent that no two cases are exactly alike; in fact, more frequently they are only remotely alike. The engineer, therefore, is forced to lean heavily on a study of the known characteristics of the materials entering into the manufacture of the protective coatings he is being offered, the results of accelerated tests made on these materials, and to a smaller extent on the general behavior of coatings in actual service as evidenced by past performance.

When confronted with coatings of new and different composition you also inquire into the manner in which they differ from others; how, or in what respects, their manufacturers have succeeded in overcoming known weaknesses or disadvantages of other coatings made for the same or similar purposes. A brief study of the composition and characteristics of Insul-Mastic and other asphaltic coatings will therefore be of interest to you.



After six years of exposure here is the characteristic difference between *Insul-Mastic* on the left and ordinary asphaltic coatings on the right. These were enlarged four diameters.

THE ASPHALTIC BASE

The 1949 report on the subject of asphalts by the U.S. Bureau of Mines, in its "Minerals Yearbook", revealed the following sales in the U.S.A. during that year:

Gilsonite Asphalts	51,462 Tons
Asphalts Manufactured From Petroleum	
Roofing Asphalt	2,351,471
Waterproofing Asphalt	127,093
Pipe Coatings	23,375
Miscellaneous Asphalts	302,175
Cut Back Asphalts	2,390,588
	5,194,702 Tons

In other words, less than 1% of the total asphalt consumption was Gilsonite. This proportion has remained essentially unchanged for many years. Asphaltic coatings claiming to contain Gilsonite generally contain less than 5% of this valuable and costly ingredient; very few brands contain as high as 10%. In Insul-Mastic, approximately 50% Gilsonite is added to the mid-continent asphalt.

Here is a brief explanation of the respective properties of petroleum asphalts and Gilsonite asphalt.

Petroleum Asphalts, obtained by distillation of crude petroleum, contain more or less waxy, greasy paraffins which are of small protective value against physical wear and tear and exposure to the elements. They contain from 70% to 80% of petrolene which in a comparatively short time is lost through evaporation. The rate of evaporation is in inverse ratio to the mass or thickness, with the result that in asphaltic paints of average thickness—1/150 inch—its loss is a matter of a very few years, especialy when exposed to high heat, actinic rays, acid fumes and other destructive agents. The residue is asphaltene, in the form of dust, which has little protective value or wearing quality. Petroleum asphalt therefore finds its greatest usefulness as a paving material or for any other purpose involving its application in great mass or thickness.

The proportion of cut-back asphalt used in Insul-Mastic is much smaller than that used generally in asphaltic coating materials, and the thickness of the coat applied by spraying with the special Insul-Mastic equipment (averaging six to twenty gallons per 100 square feet) is many times greater than is obtainable with the best kinds of asphaltic paints on the market.

Gilsonite Asphalt, as found in its natural state, is a hard, brittle, lustrous mineral. Its discovery in the Uinta Basin of Utah by Mr. Samuel H. Gilson, pioneer and prospector, dates back to the late Eighties. As mined, it is one of the purest minerals found in nature. It is entirely free from volatiles and other short-lived impurities. When heated, it may be drawn into long, thin, rubber-like threads, a fact which probably accounts for its being popularly called "mineral rubber".

Since its discovery over half a century ago, Gilsonite has been proven by scientific tests, as well as by the supreme test of Time and Service, to be a most valuable water barrier and to be highly immune to decomposition and disintegration by acids, alkalies and actinic rays.

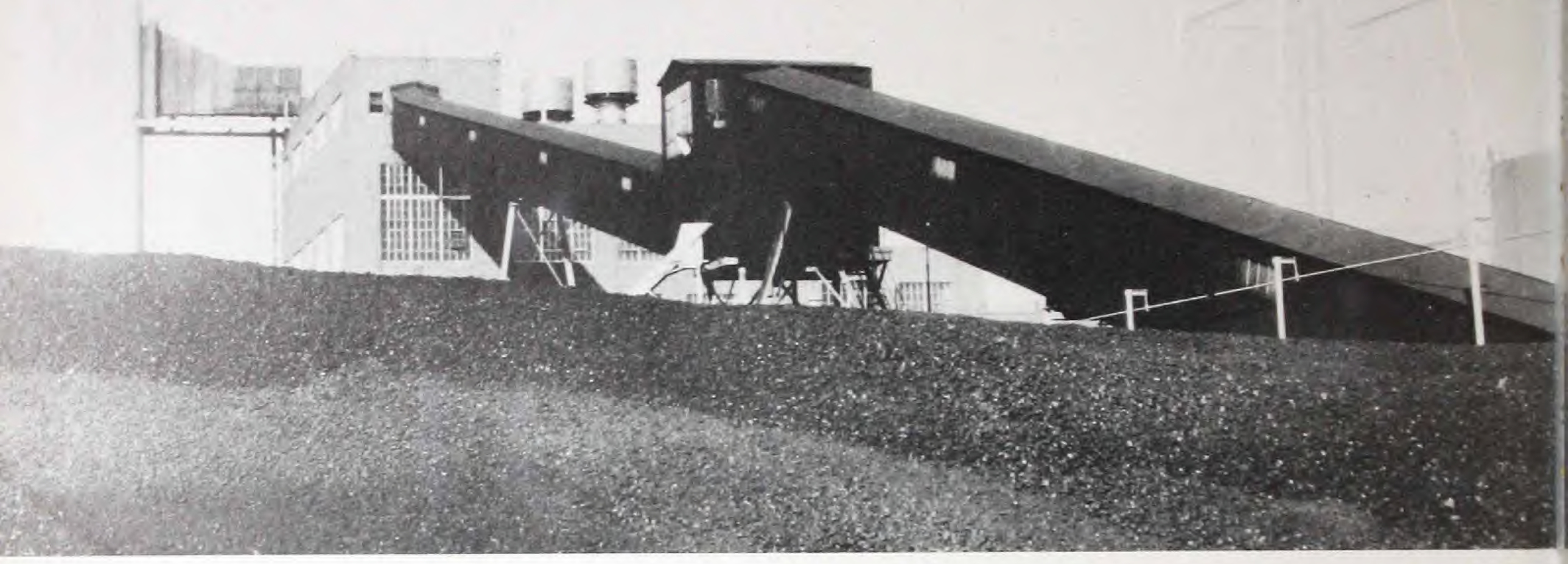
It is composed of highly complex hydrocarbons saturated to the limit of their capacity, not susceptible to displacement by other elements nor to combination with acids and alkalies, nor to usual rates of oxidation by exposure to the atmosphere.

It can be destroyed only by the most powerful oxidizing agents such as persistent, applied fire, or hot sulphuric acids, or a mixture of sulphuric and chromic acids, or by fuming nitric acid.

These properties make Gilsonite one of the most resistant of all the materials used in the paint and coating industry, being especially superior to the ordinary paint pigments and oils which are more readily attacked by the chemicals just enumerated.

The reasons for this vast difference in durability as between Gilsonite and oil asphalts is explained by striking differences in composition. It contains a much higher percentage of indestructible and stabilized hydrocarbon. The other hydrocarbons are highly complex, and unlike the petrolenes and paraffins in petroleum asphalts, are practically immune to loss by evaporation. Gilsonite contains virtually no paraffin.

the composition of INSUL-MASTIC



Insul-Mastic contains from 40% to 55% mineral fillers. The function of mineral fillers in asphaltic coatings is to increase their cohesion, adhesion, durability and resistance to abrasion. As concrete is a stronger, more durable material than cement, asphaltic coatings containing properly selected and compounded fillers are similarly stronger and more durable than coatings not so constructed.

The inert fillers, moreover, present not only more or less indestructible barriers against attack by the elements, but against other destructive agents, such as acids and alkalies. As the vehicle or matrix (corresponding to cement) is gradually oxidized or destroyed, more and more of the inert fillers are uncovered, obstructing the progress of the attack. In old fashioned wrought iron a similar barrier action by the inert slag filaments is given credit for the high resistance to corrosion of this metal.

Researches conducted by chemists attached to the National Bureau of Standards show that:

1. Accelerated Tests, such as are made in the "Weather-Ometer" on asphaltic coatings, produce in a short time all the types of failures encountered in actual service exposed to the weather.
2. The durability of asphaltic coatings is increased by the addition of mineral fillers, by anywhere from 150% to 350%, depending on the percentage and type of fillers used.
3. Mica flakes apparently are vastly superior to all other types of fillers. (See synopsis of Report of Dr. O. G. Strieter, of the National Bureau of Standards on pages 35 and 36 herein.)

In Dr. Strieter's tests it was found that asphalts with no mineral fillers tested in the "Weather-Ometer" lasted only 22 cycles; asphalts containing only 15% mica filler lasted 80 cycles; a record approached by no other filler. One set of samples containing more than double this quantity of fillers (35% slate flour) also lasted 80 cycles. No samples containing over 15% mica were tested.

Because the superiority of Mica flakes as a filler has been strongly confirmed by service records (quoted elsewhere herein, under the

MINERAL FILLERS

subject of "Tests and Laboratory Reports") as well as by our own laboratory tests, mica constitutes by far the greatest percentage of the fillers used in most types of Insul-Mastic. The total amount of these fillers is from 40% to 55% by weight (after the solvents have evaporated), which is far in excess of the amounts found in commercial asphaltic coatings. In these latter, rarely over 15% fillers are used. Even in the tests just referred to, conducted by Dr. Strieter, no test samples contained more than 35% fillers.

It has been found that the increase in life, with any given filler, is almost proportional to the amount used, up to a maximum of about 65%. The significance of the very high percentage used in Insul-Mastic will, therefore, be understood. The extraordinary service record of Insul-Mastic is due in no small measure to its advantages over all other asphaltic coatings in both quality and quantity of fillers used.

The reasons mica filler is seldom if ever found in appreciable quantities in competitive asphaltic coatings, are, first, that mica is relatively costly. For example, its price per ton is about ten times as great as that of limestone filler, which is extensively used in asphaltic coatings. Another reason is difficulty of control in manufacturing and application, as mica usually tends to settle in the containers, forming a very dense mass, very difficult to break up and distribute evenly. This difficulty is not experienced in Insul-Mastic.

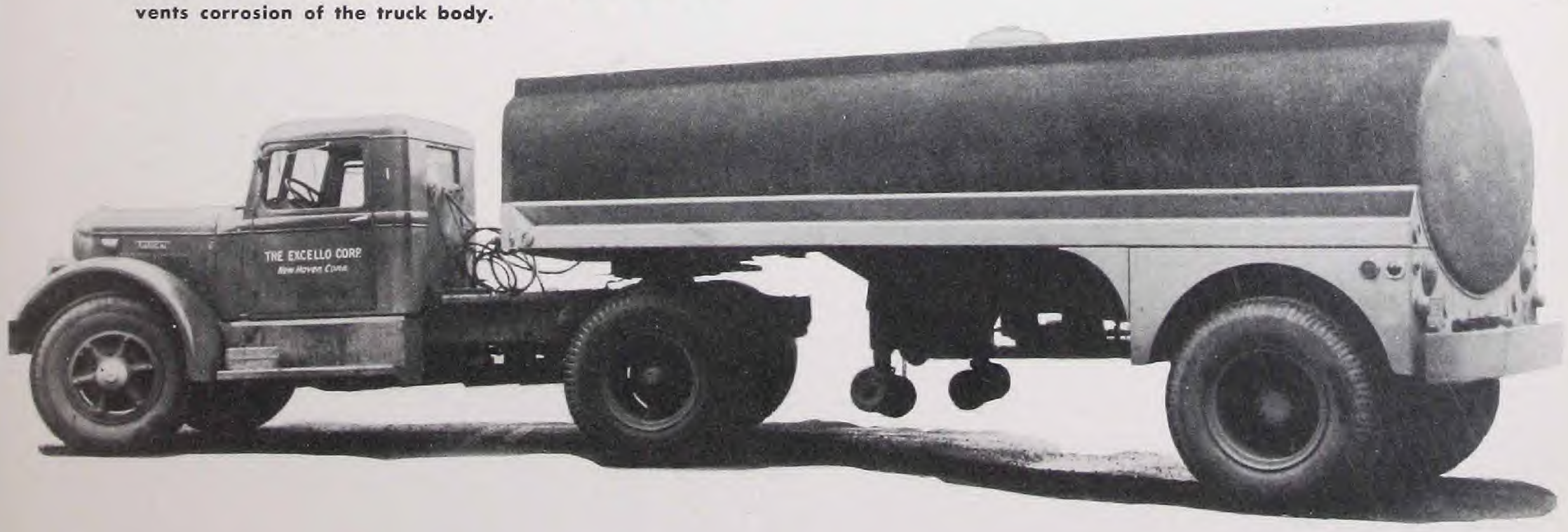
Asbestos fiber, which is frequently claimed to be a good filler, is used to a very limited extent in Insul-Mastic because its value in prolonging life has proved to be subordinate to its value as a binder. Therefore, only enough asbestos fiber is used to serve this purpose.

Selected ceramic clays are also added, these having been found to impart highly desirable characteristics not obtained by the use of any of the fillers commonly employed in the manufacture of liquid asphaltic coatings.

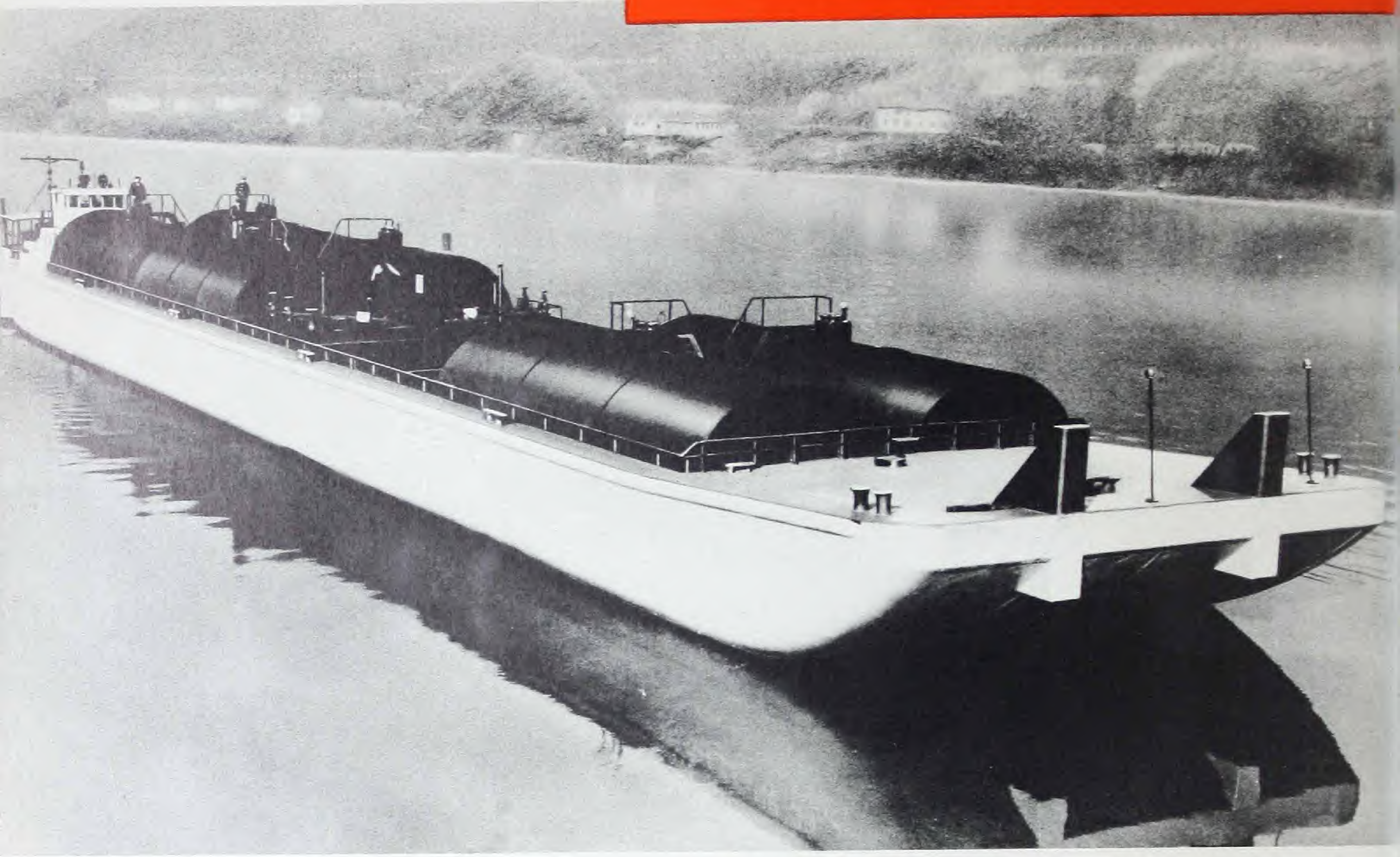
As already indicated, mineral fillers in asphalts make possible their application to a much greater thickness than would otherwise be possible. The higher the percentage of fillers, the smaller is the tendency to run, slip or slide, and the higher the fire and heat resistance.

Other advantages conferred by well chosen fillers are ability of the coating to dry thoroughly, throughout its mass, even though applied to a thickness 10 or 20 times as great as that possible with asphaltic and oil paints; also the ability to bridge and seal the finer cracks in concrete, stucco and other masonry. Each of these characteristics is dealt with separately herein under the general heading of "Properties of Insul-Mastic."

This coal conveyor housing is assured a long life. It is coated with *Insul-Mastic* to prevent it from rusting. The truck is one of a fleet carrying formaldehyde. It is insulated with *Insul-Mastic Type "D"* which also prevents corrosion of the truck body.



the properties of INSUL-MASTIC



The insulated tanks on the barge were properly weathersealed with *Insul-Mastic* during construction.

PENETRATION AND MELTING POINT

Insul-Mastic coatings possess a high degree of toughness and flexibility, even at low temperatures. The relative softness or hardness at various temperatures is technically known as "penetration", the greatest hardness being 0, higher figures expressing greater softness. The penetration figures are as follows, as applied to asphaltic coatings upon drying:

Insul-Mastic No. 4010,* penetration at 77° F. . . . 30 to 35

Ordinary Asphaltic Paints at 77° F. . . . 0 to 4

A degree of softness at all atmospheric temperatures, especially low ones, is highly desirable, enabling the coating to withstand expansion and contraction and movement strains without checking, cracking and losing its bond.

This softness is obtained in Insul-Mastic by using a blend of asphalts with a very low (initial) softening point—about 160° F. for No. 4010, as against 250° F. for ordinary asphaltic paints. These low softening points enable Insul-Mastic to retain a desirable degree of softness and flexibility at temperatures down to —30° F., at which temperatures ordinary asphalts are hard and brittle, resulting in progressive checking and cracking due to shrinkage, and loss of bond with the surface over which they are applied.

The question might be asked: "Does not the low melting point of the asphalts in Insul-Mastic make the coating run or slip easily at high temperatures?" The answer is that the percentage of mineral fillers in Insul-Mastic raises the melting point of the coating so that it will successfully stand up under much higher temperatures than ordinary asphaltic coatings. These facts are further explained in the following paragraphs.

* NOTE—This varies with the different types of Gilsonite Insul-Mastic materials, but the figures for No. 4010 are indicative.

FIRE AND HEAT RESISTANCE

A coating of Insul-Mastic may be applied for test purposes on a piece of sheet metal and, when dry, it may be suspended in a vertical position, in an oven heated to 300° F. Insul-Mastic, at this temperature, will show only a slight degree of softening, but when dry it will not melt or run even when exposed to the flame of a blowtorch. The best of ordinary asphaltic coatings will melt and run before 250° F. is reached. This important difference in behavior is accounted for by the special character and composition, and the very high percentage of mineral fillers in Insul-Mastic.

After the solvents have evaporated Insul-Mastic materials are highly fire resistant. In their mastic state they are combustible, since they use petroleum solvents, and should be treated accordingly. But after the coatings have been applied and the solvents have left, they will not in themselves sustain combustion. A blowtorch applied to a flat surface with which they are coated may cause them to flame very slightly as long as the flame of the blowtorch remains in contact, but as soon as the blowtorch is removed the combustion ceases.

Tanks coated with Insul-Mastic materials have gone through fires that have laid waste plants in which they were situated, but the tanks have come through such fires unscathed, with practically no damage done to their Insul-Mastic coatings.

Fire resistance tests have been run, to our knowledge, by several leading American companies in their own laboratories and the results they have obtained are in accord with what has been said above.

Such Insul-Mastic materials as Nos. 4010, 4005 and 4127 will safely sustain temperatures up to 200° F. without perceptible softening, and such progressive softening as takes place above this temperature will not cause the uniform thickness of the coating to be disturbed save by the actual physical impact of extraneous objects.

These qualities of Insul-Mastic are so unique in the whole field of asphaltic coatings, that engineers and chemists, upon first reading these statements, may rightly feel quite skeptical about accepting them. However, actual tests upon samples of Insul-Mastic will quickly dispel all skepticism.

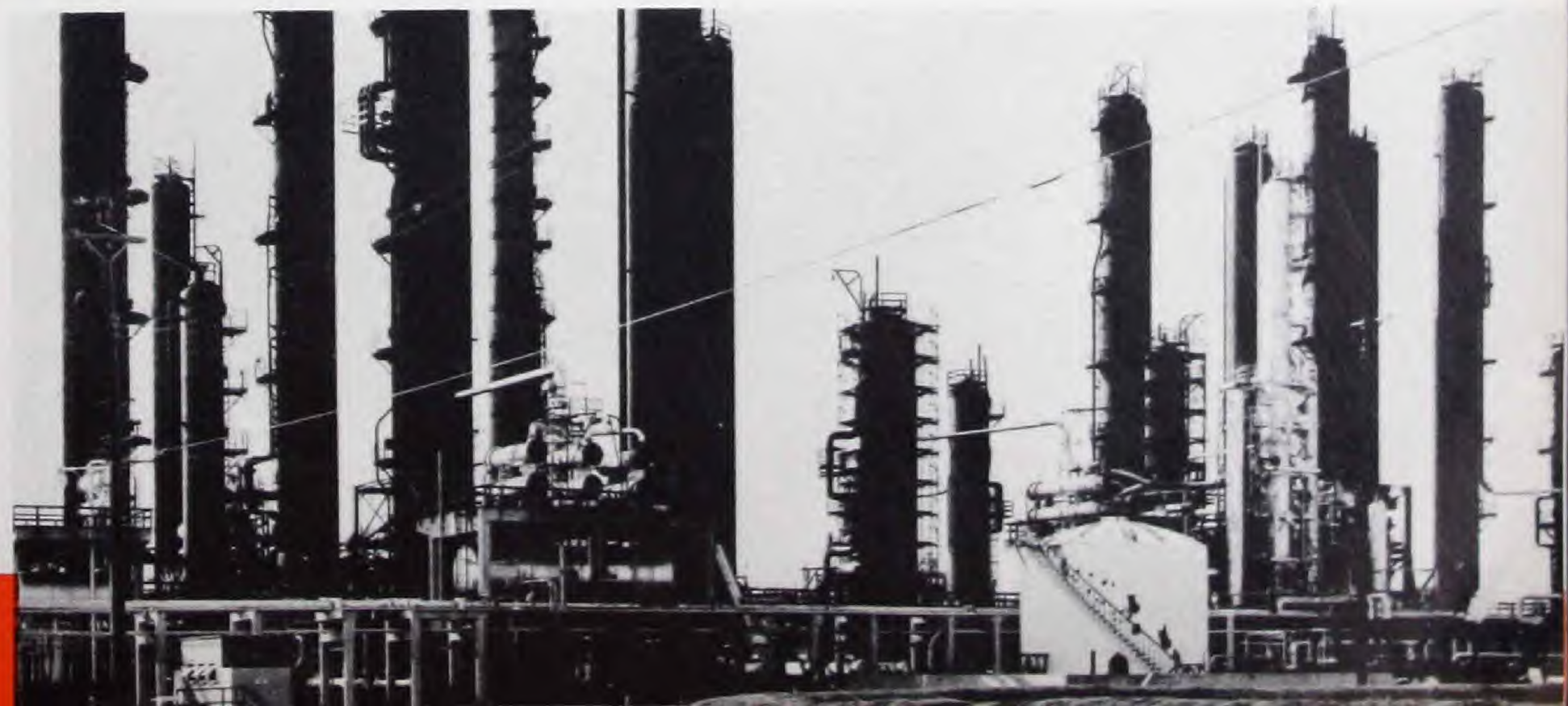
See also report on tests at high temperatures, made by Lloyd A. Hall, Consulting Chemist, on page 34 herein.

Ash Content. The high percentage of mineral fillers in Insul-Mastic is reflected in the volume and weight of ash obtained by direct ignition. This ash varies from 32% to 35%, depending on the type of Insul-Mastic. The "ash" is understood to include both actual ash and unconsumed parts of the more or less incombustible fillers.

It is important to note, in this connection, the weight of Insul-Mastic, due to the lightness of the fillers, is only about 9 pounds per gallon (No. 4010). Coatings in which fillers of high specific gravity are used, weigh as much as 13 to 14 pounds per gallon, and show a relatively high percentage of ash, although in actual volume, the amount of fillers is usually very small when compared with Insul-Mastic. As stated elsewhere herein, the volume and quality of fillers rather than weight, are the factors of primary importance in prolonging life.

LOSS BY EVAPORATION

The loss of weight through evaporation, which takes place after application of asphalt emulsions in general, is about 50%, and of liquid roof coatings upwards of 40%. By comparison, the loss of weight sustained by Insul-Mastic in drying is only from 20% to 25% (about 15% to 20% by volume). These differences are of the greatest significance, since the greater the loss by evaporation, the more porous and absorbent the coating will obviously be after drying. This permits penetration and destruction by moisture and corrosive agents in general.



These towers were rusting away beneath insulation that was water-soaked due to an inferior coating. They were re-insulated and weather-sealed with *Insul-Mastic* and Glasfab.

properties of INSUL-MASTIC (cont.)

RESISTANCE TO CHEMICAL ATTACK

One of the most valuable properties of asphalts in general, is their high degree of immunity to attack by acids and alkalies. A mistake which has often been made, however, is to overlook the all-important factor of mass or thickness of the coating, and that protective coatings easily become abraded and punctured by contact, impact, wear and tear, especially at edges, projecting corners and at the high points on rough surfaces.

To begin with, if applied by brushing, any coating will inevitably be very much thinner in these places than on the smooth surfaces and in depressions. This "scalping" is eliminated in Insul-Mastic by spray application which insures a coating of much more uniform thickness than is obtainable by any other method.

A quality of Insul-Mastic which makes it applicable in very great thickness, is its heavy, semi-plastic consistency, obtained by a very high percentage of mica filler.

Another characteristic is its high degree of flexibility, which insures a total absence of any tendency to check or crack, run or slip, over the widest temperature range—from —40° F. up to +300° F.

Insul-Mastic, and the special method of applying it, insures a coating of the greatest and most uniform toughness and elasticity, as well as thicknesses. Therefore, it also insures a more lasting protection of steel, masonry and other surfaces against chemical attack than is obtainable from any asphaltic or paint coating not possessing these characteristics to an equal or greater degree.

See in this connection the record of Laboratory and Service Tests on Insul-Mastic in contact with acid and alkaline solutions, under the general heading of "Tests and Laboratory Reports" beginning on page 35.

At the Coosa River Newsprint Plant, *Insul-Mastic* protects vessels in the highly corrosive caustic area.

Acid is stored in the tanks behind the wall. *Insul-Mastic* under an aluminum coating protects the tanks from spillage and vapors. They are in the Calco Chemical Division of the American Cyanamid Company, Linden, New Jersey.

BRIDGING ACTION

In covering all kinds of masonry, especially stucco and concrete, Insul-Mastic, due to its unique composition and heavy consistency, has the ability to bridge minor cracks existing at time of application. This sealing effect will be permanent in the case of all cracks which have reached a point of stability at time of application. As Insul-Mastic prevents further entry of moisture and widening of cracks by frost action, the possibility of future depreciation and damage to the structure from these causes is virtually eliminated.

In the case of wood structures, the sealing effect is not so permanent, as wood boards are liable to warp, shrink and cup. Even these tendencies, however, are greatly minimized by the Insul-Mastic coating, because moisture can no longer enter from the coated side.

On steel work, joints are sealed preventing the entry of moisture and the resulting corrosion. In the case of structural cracks of greater than minor nature, or where movement may occur, a membrane should be applied over a thin coating of Insul-Mastic and then covered with another coating of the same material. See membraning information on page 20.

DRYING TIME

Cut-back asphalts are made from solid asphalts by the addition of solvents which render them suitable for use, in their cold state, as paints or liquid protective coatings, without the necessity of preheating. Asphaltic paints in general consist of about 55% asphalt and 45% solvents. In drying, most of these solvents are lost through evaporation, with corresponding increase in permeability, and decrease in film thickness.

In Insul-Mastic, due to its high percentage of mineral fillers, a very much smaller proportion of the total mass, namely about 30% by weight, consists of solvents, and the loss through evaporation is thereby reduced to anywhere from 20% to 25% of the total weight. There is a corresponding gain in the ability of the coating to dry without loss of essential moisture repellent qualities. In fact, with such heavy coatings as are possible with Insul-Mastic, thorough drying would be impossible were it not for the presence of the mineral fillers.

Insul-Mastic begins to "set" immediately upon application. The drying, due to the mineral fillers, takes place uniformly throughout the mass, No. 4010 becoming tough and firm in about nine days indoors, or at normal summer temperatures. Outdoors, the drying may take a little more or a little less time, depending on weather conditions.

Outdoors, the drying at temperatures about 50° F. proceeds rapidly enough that the coating on vertical or nearly vertical surfaces will suffer no perceptible damage even if exposed to a heavy rainstorm within a short time after application.

Surfaces covered with Insul-Mastic, except the quick-drying types, should not be walked on in less than two or three weeks, and then not without first making sure that the coating is firm enough to be stepped on.

BONDING PROPERTIES

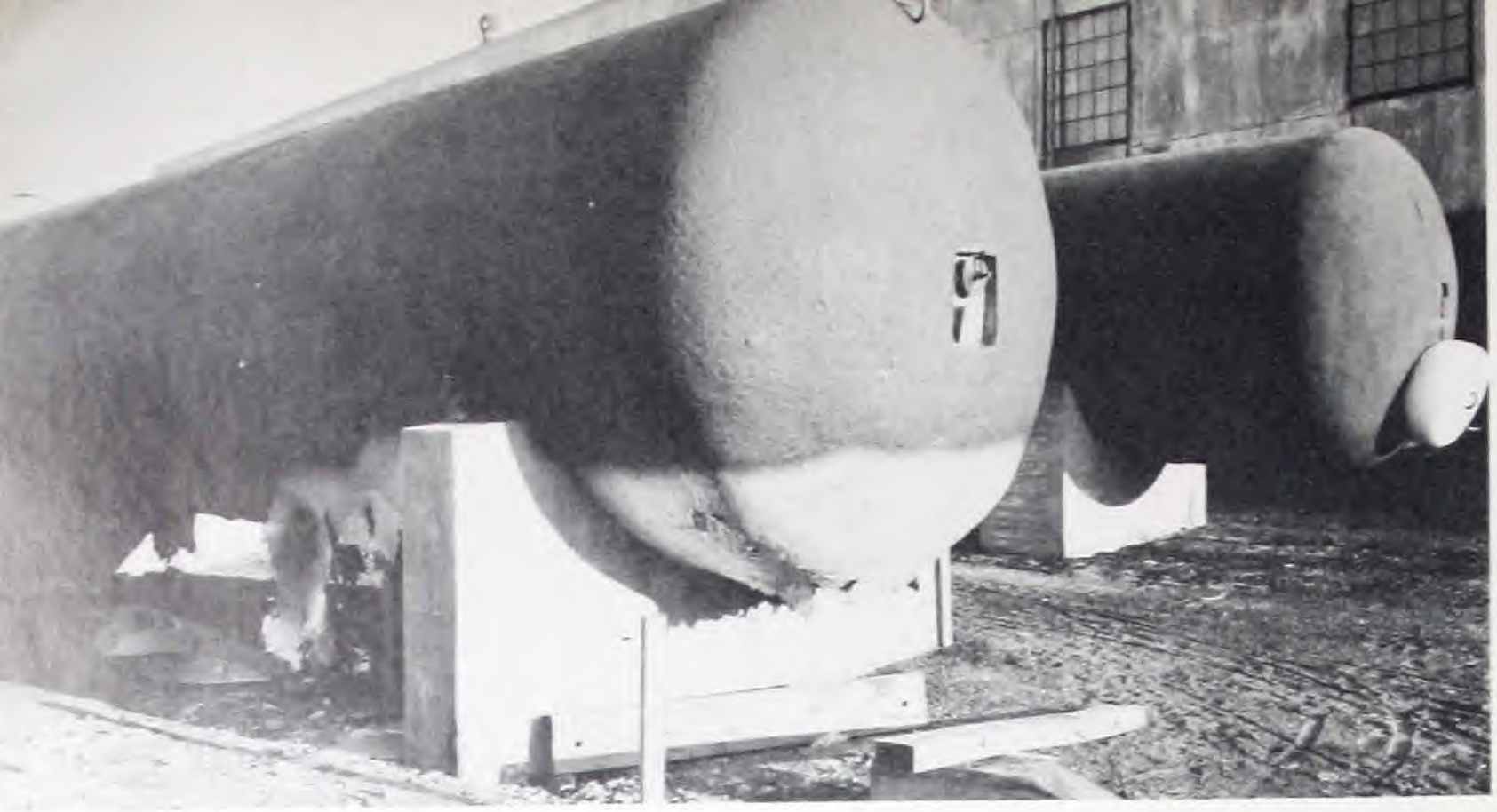
Insul-Mastic will bond securely with practically all building materials, including iron, steel, brass and copper; galvanized tin and lead coated products; glass, glazed and unglazed tile; brick, stucco, concrete; gypsum; plaster; etc.

About the only essential condition for securing a good, permanent bond, is that the surface must be free from moisture, dirt, grease, oil, pitch, tar, loose rust, scaling paint or other foreign matter. In other words, the surface whatever its character, must be reasonably clean and dry, and in itself have enough strength and be so well integrated that it will not subsequently disintegrate.

Pitch and tar will become soft and "soupy" at summer temperatures; they will also check and crack excessively at low temperatures; hence, no protective coating of any kind will ever stick to them for any length of time. These coatings must, therefore, be removed before applying Insul-Mastic.

Not only does Insul-Mastic, due to its high Gilsonite and filler content, form a very strong bond with the various materials mentioned, but more important, the strength of the bond is not visibly affected by time and exposure to sun, heat, cold and moisture over a period of many years. This is so, because Insul-Mastic has a very low shrinkage factor, and also because it does not dry out and become hard. It remains soft and flexible after years of service.

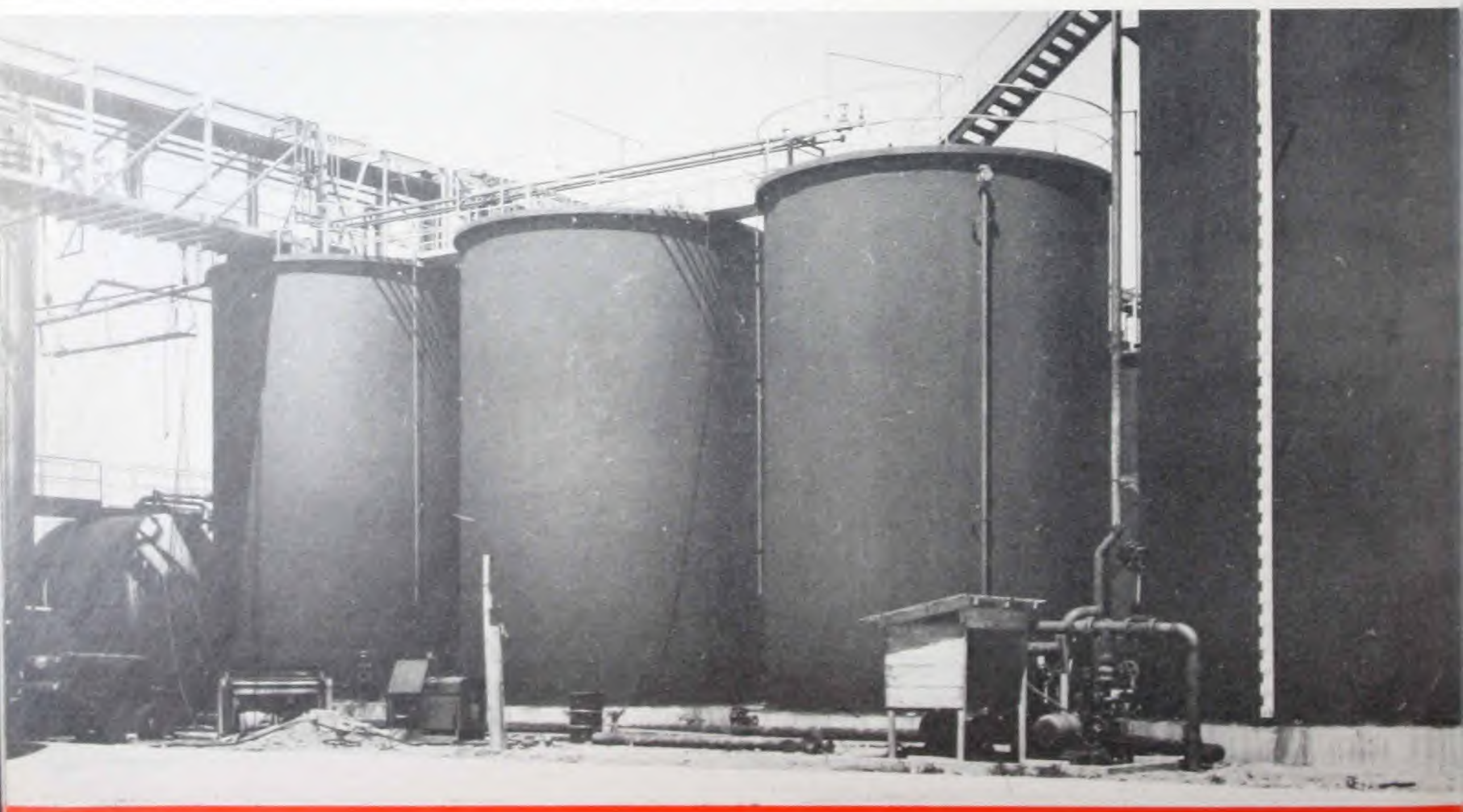
Checking and cracking at low temperatures occurs progressively in all ordinary asphaltic



Before re-insulating with *Insul-Mastic Type "D"* these propane tanks at the Wallingford Steel Company, Wallingford, Connecticut, looked like this.

Here are the same tanks insulated with *Insul-Mastic Type "D"*. Over this was applied a light coat of *Insul-Mastic 4010* and grey stone granules.

Caustic storage tanks insulated with cellular glass. A coating of *Insul-Mastic No. 4010* was applied over the insulation for physical protection and weathersealing.



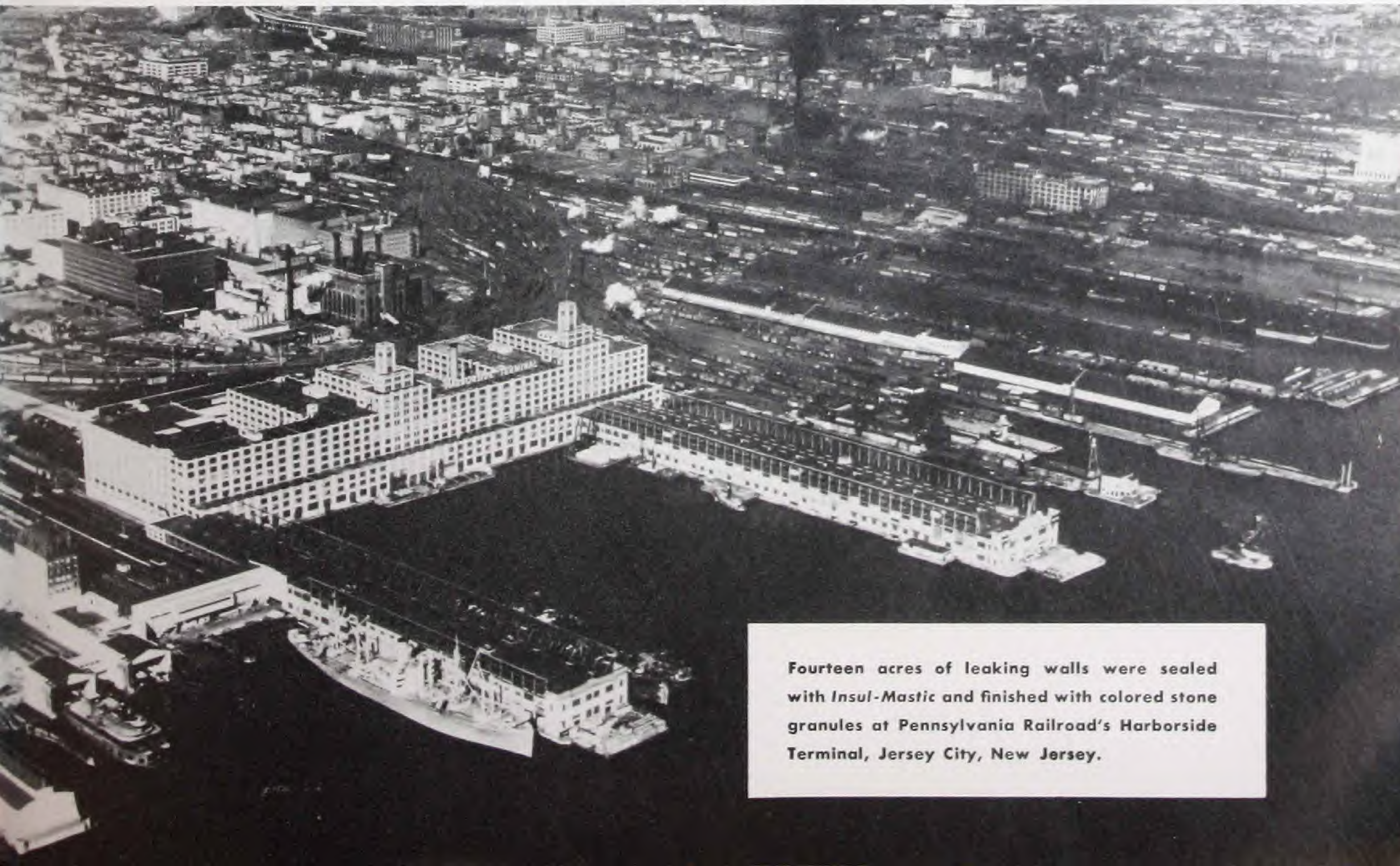
properties of INSUL-MASTIC

(cont.)

and paint coatings which dry out hard. Their bond with the base material is thereby so weakened that they no longer furnish the desired protection against entry of corrosive and destructive agents.

The difference in degree of shrinkage as between Insul-Mastic and other asphaltic materials has been demonstrated by a simple test. It consisted of casting or moulding sticks of different grades of asphalts, about 30" x 4" x 1/16" and exposing them alternately to indoor temperatures by day and outdoor winter temperatures (in Chicago) by night. The sticks were laid down so that they were free to move longitudinaly. They were found to shrink progressively and after a period of three months the total shrinkage in some amounted to as much as 1½", while in Insul-Mastic it was only about 1/16".

Such shrinkage as exists in Insul-Mastic products is readily compensated for by the elasticity of the flexible coating without straining or weakening its bond with the base material.



Fourteen acres of leaking walls were sealed with *Insul-Mastic* and finished with colored stone granules at Pennsylvania Railroad's Harborside Terminal, Jersey City, New Jersey.

LLOYD A. HALL
CONSULTING CHEMIST
1415 WEST 37th STREET + CHICAGO
TELEPHONE LAFAYETTE 9514 ●

Process Development Consultation and Advice Expert Testimony
Chemical Analyses Industrial Research Investigations

January 26, 1942

Insul-Mastic Corp. of America
1144 Oliver Building
Pittsburgh 22, Pennsylvania

Gentlemen:

I have completed corrosion tests that were initiated over a month ago on Insul-Mastic panels. There were two types of material under test, namely Type "D" Insul-Mastic and regular Gilsonite Insul-Mastic.

The material was sprayed in regular thickness (1/8 to 1/4") on steel panels. They were thoroughly dried and then hung in the vapor outlet hood of a salt dryer in the factory of The Griffith Laboratories. The temperature of the vapor in this hood ranges from 200 to 250° F. The dryers were in continuous operation, 24 hours a day during this test. The vapors going through this hood consist of steam, salt, and small amounts of hydrochloric acid.

At the end of the thirty days the panels were removed and the Insul-Mastic coatings on each of the panels was found to be absolutely unaffected. The Griffith Laboratories have previously found that a good many metals which had been used to build this hood and outlet have corroded in a very short time, due to these fumes which are released during the drying of the curing salt product.

Among the metals which have been utilized for manufacturing this hood are aluminum, steel, glass enamel, galvanized iron, monel metal, and stainless steel. In no instance were these metals satisfactory because of their rapid corrosion under constant usage. Usually, the corrosion began to appear in the above metals in about two weeks and there was very definite corrosion at the end of thirty days.

The comparison with the Insul-Mastic coatings indicates that this material is far superior to the above metals for highly corrosive fumes, such as hydrochloric acid and it is apparent from these results that it would stand sulphurous and sulphuric acid fumes.

In the experience of the writer, the Insul-Mastic coatings are more satisfactory for use against acid fumes than any other materials he has thus far tested. These Insul-Mastic products should, therefore, find a large and satisfactory use in chemical plants or other types of plants where there are highly acid corrosive fumes or vapors.

Very truly yours,

Lloyd A. Hall

Lloyd A. Hall
Consulting Chemist

LAH/sb

TESTS AND LABORATORY REPORTS

RESISTANCE TO ACIDS AND ALKALIES

Gilsonite Insul-Mastic is resistant to most acids and alkalies, and has proven effective in protecting against corrosion in many types of chemical plants, including, among others, rayon and soap manufacturing plants, galvanizing dip rooms and paper pulp mills.

To test the resistance of Gilsonite Insul-Mastic to intensified chemical attack, laboratory tests have been conducted by continuous immersion for ninety days in acid and alkali solutions at room temperature. The test material consisted of pieces of galvanized sheet steel, #22 gauge, 2" x 5", coated one side with 1/16" of Gilsonite Insul-Mastic and suspended vertically in solutions. The results were as follows:

Sulphuric Acid (approximately 35% concentration). After ninety days the metal was dissolved in the acid whereas the Insul-Mastic had not been attacked perceptibly.

Hydrochloric Acid (approximately 35% concentration). The same results as Sulphuric Acid above.

Citric Acid (approximately 35% concentration). The same results as Sulphuric Acid above.

Acetic Acid (approximately 35% concentration). Metal badly corroded but otherwise the same results as Sulphuric Acid above.

Calcium Chloride, concentrated solution. Metal badly corroded but Insul-Mastic in perfect condition.

Soda Ash, concentrated solution. The same results as Calcium Chloride above.

Caustic Soda, concentrated solution. The same results as Calcium Chloride above.

Sodium Chloride, concentrated solution. The same results as Calcium Chloride above.

We recommend that panels or small samples of Gilsonite Insul-Mastic be tested under actual conditions existing within manufacturing plants or industrial concerns contemplating its use. Such panels and samples should be prepared in strict conformance with Insul-Mastic specifications, preferably by EXPERIENCED Insul-Mastic representatives.

ACCELERATED TESTS

Much of the scientific knowledge we have today of the durability of asphaltic coatings has been gained by research work carried on by chemists working under the auspices of the National Bureau of Standards. While actual service tests ultimately give the best answer to the all-important question of durability, such service tests can be employed to advantage mainly in the case of low-priced paints having a life of only a few years. With coatings which are designed to give service for upwards of 15 to 20 years, by the time conclusive evidence can be obtained from long-time service tests, the product tested more than likely is no longer representative of that then being produced due to changes and improvements constantly being made in processes and materials.

Accelerated corrosion tests on metals in general have proved so unreliable that they are heavily discounted. That, however, has not been true with accelerated weathering tests of asphaltic and other coatings. Equipment developed for this purpose, notably the "Weather-Ometer", has given results which closely parallel those obtained by outdoor exposure for much longer periods. In the "Weather-Ometer", samples of materials to be tested are subjected to the heat and light of a carbon arc lamp, with intermittent water spray, drying, freezing and thawing. The length of the cycle is usually 24 hours, with resulting rapid deterioration of all but the most durable materials, among these latter being Insul-Mastic. Dr. O. G. Strieter, Research Associate with the National Bureau of Standards, states: "It has been shown that asphalts behave similarly when exposed to accelerated outdoor and (actual) weathering tests." (Journal of Research, Bureau of Standards, 5,247 1930).

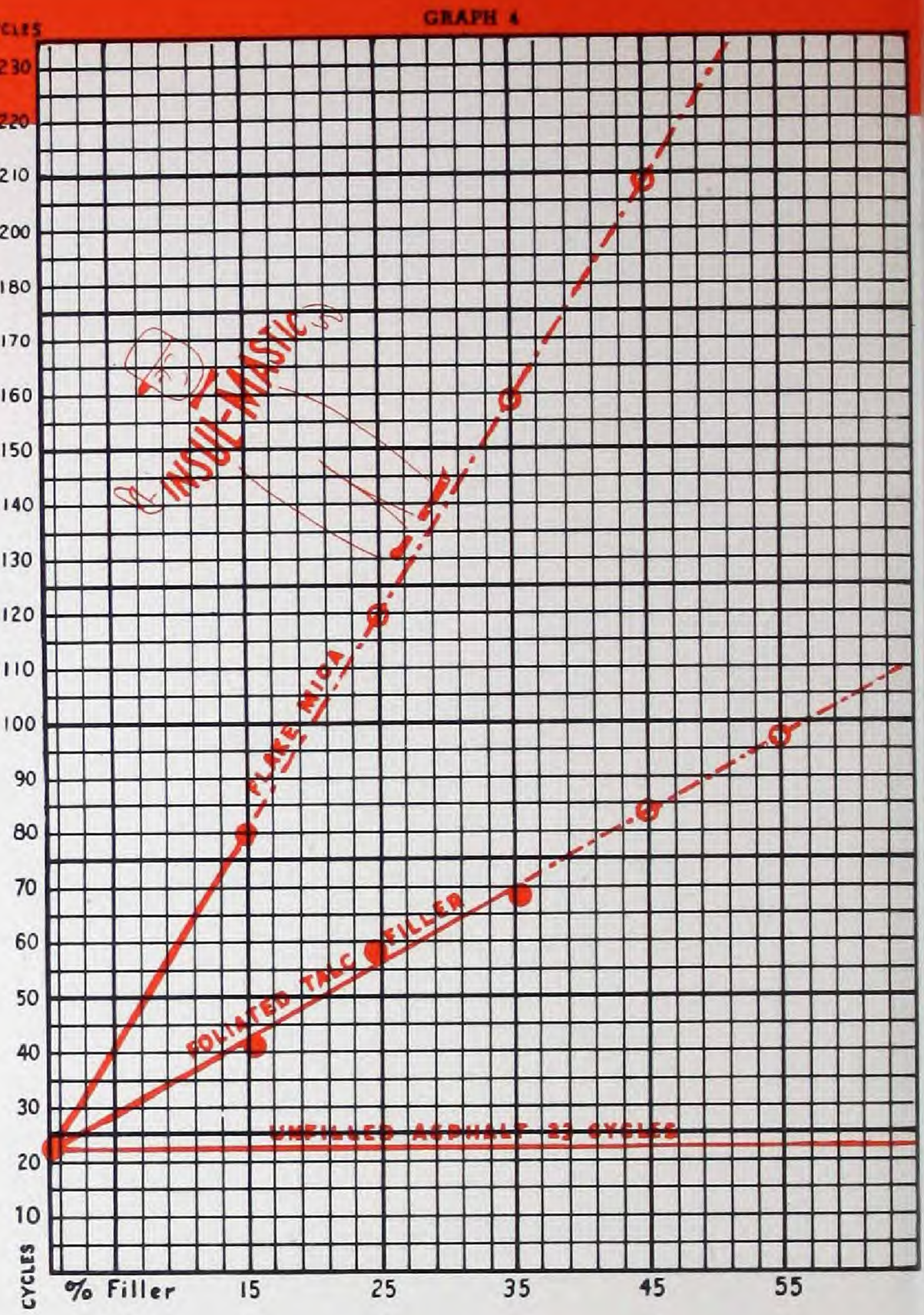
In an investigation made by Mr. H. R. Snoke and Mr. Braston E. Gallup, Chemists of the Bureau of Standards, accelerated tests were made on 39 samples of asphaltic roofing materials and compared with the behavior of duplicate sets of identical samples exposed to the weather for one, five, and seven months respectively. The behavior of the samples in both types of tests were so strikingly similar that the authors concluded: "All the types of failure encountered in long outdoor exposures—under the most severe conditions—can be produced in a relatively short time by accelerated weathering".

(Research Paper R. R. 1002 of Vol. 18, June 1937, issue Jnl. of Research.)

some INSUL-MASTIC jobs

Air Material Command
American Bemberg Division of Beaunit Mills, Inc.
American Brass Company
American Cyanamid Company, Calco Chemical Division
American Viscose Corporation
Archer Daniels Midland Corporation
Arizona Chemical Company
Arrow Petroleum Company
Atomic Energy Commission
Beech Nut Packing Company
Berylium Corporation
Bethlehem Steel Company
Black & Decker Mfg. Co.
Boston Edison Company
Brett Lithography Co., Long Island City, N. Y.
Bristol-Meyers Company
Canada Linseed Oil Mills, Ltd.
Carbide & Carbon Chemicals
Celanese Corporation of America
Central New York Power Corp.
Champion Paper and Fiber Company
Cherry-Burrell Corporation
Cit-Con Corporation
Cleveland State Hospital
Columbia Southern Chemical Company
Commercial Travelers Insurance Co.
Consolidated Chemical Corporation
Consolidated Film Industries, Inc.
Continental Paper Company
Coosa River Newsprint Company
Corn Products Refining Company
Crown Cork & Seal Company
Dominion Linseed Oil Company
Dow Chemical Company
Dravo Corporation
E. I. Du Pont De Nemours & Co.
Eastman Kodak Company
Esso Standard Oil Co. of New Jersey
Ethyl Corporation
Farrell Birmingham Corporation
First Federal Bldg., St. Petersburg
Ford Instrument Company
General Electric Company
General Motors Corporation
Georgia Power Company
John Hancock Life Insurance Company
Harborside Warehouse Company
Hartford Gas Company
Hartford Rayon Corporation
Industrial Rayon Corporation
International Milling Co.
Johnson & Johnson
M. W. Kellogg Company
Charles B. Knox Gelatine Co., Inc.
Lever Brothers
Madison Square Garden
Marineland, Florida
Martin Aircraft Company
Massachusetts Institute of Technology
Meadowbrook Hospital, Long Island, N. Y.
Metropolitan Life Insurance Company
Monsanto Chemical Co.
Montgomery Ward Co.
Neches Butane Products Company
New York Power & Light Co.
New York Stock Exchange
Niagara Hudson Corporation
Pennsylvania Railroad Company
Pennzoil Company
Pittsburgh Corning Corporation
Pittsburgh (Pa.) Post Office
Procter & Gamble Company
Public Service Corp. of New Jersey
Pure Oil Company
Radio City
Radio Corporation of America
Reid-Avery Company
Remington Arms Company
Republic Oil Corporation
Republic Steel Corporation
Rockefeller Center, New York City
Will Rogers Memorial Hospital
Sanitary District of Chicago
Dow Chemical Company
A. Schrader's Son (Div. Scovill Mfg. Co.)
The Shamrock
Shell Oil Company
Sinclair Rubber, Inc.
Skenandoa Rayon Corporation
Socony Vacuum Oil Company, Inc.
Southern Paperboard Corporation
Standard Brands Incorporated
Surface Combustion Co.
Texas Oil Company
Tiffany & Company, New York City
Trinity Church, New York City
Truscon Steel Company
U. S. Air Forces
U. S. Army Ordnance
U. S. Army Signal Corps.
U. S. Industrial Alcohol Company
U.S. Navy
United States Steel Company
United States Rubber Reserve
Viking Pump Company
Westchester Biltmore Country Club
Western Electric Company, Inc.
West Virginia Pulp & Paper Company
Westinghouse Electric & Mfg. Co.
Winchester Repeating Arms Company
Winnepeg, Canada — Municipal Reservoir

GRAPH 4



Here is shown the probable life of higher percentages of Mica Flake projected from the showing made by a coating containing only 15% of this filler in Dr. Strieter's tests. The probable life of the next best filler (foliated talc) projected from the actual showing of asphalts containing 15% and 25% respectively of this filler is seen to be considerably less than mica.

TESTS ON MINERAL FILLERS

In an investigation made by Dr. Strieter,* 57 different asphaltic compositions and filler mixtures were first applied on aluminum sheet metal. Seven sets of each of these 57 types were prepared in duplicate, 114 panels in each set. One of the seven sets was given the accelerated weathering test in a "Weather-Ometer", and the other six sets were exposed to the weather outdoors for 1½ years, in six different localities, including Buffalo, Chicago, Manville, N. J., Washington, D. C., New Orleans, and Los Angeles.

The behavior of the samples in the "Weather-Ometer" was found to be in striking agreement with those outdoors, except in respect to a degree of deterioration, the point of failure obviously being reached much earlier in the "Weather-Ometer". The purpose of these tests, however, was mainly to ascertain the relative value of different mineral fillers in asphaltic coatings.

SUPERIORITY OF MICA FILLER

Mica in general is used to only a limited extent in the manufacture of asphaltic coatings, which may account for the fact that only one set of 57 sets of samples tested contained mica, and this set contained 15% of this filler. Two other sets of samples contained foliated talc, and since this material is "next of kin" to mica, it was not surprising that it ranked next to mica in value as a filler. All the other fillers were in powder or flour forms.

One group of samples contained 15% fillers, another group 25% and the third and highest group, 35%, all by weight. Commercial coatings rarely contain over 15% fillers. Gilsonite Insul-Mastic contains as high as 55%. For control purposes, a set of samples covered with (unfilled) straight asphalt was also tested in the "Weather-Ometer". By comparison the asphalt coatings containing:

No fillers lasted	22 Cycles
15% of Mica fillers lasted	80 Cycles
15% of Other fillers lasted	34-36 Cycles
25% of Other fillers lasted	34-56 Cycles
35% of Other fillers lasted	34-80 Cycles

In the first group, with 15% fillers, were included one set of samples containing 15% mica, the only mica samples in the entire lot of about 800 samples. These samples lasted for 80 cycles, or more than twice as long as any of the other samples in the 15% group. Even in the group with 25% fillers, the best samples lasted only 56 cycles. In the group containing 35% fillers, none contained mica; and only one, containing 35% slate flour, lasted for 80 cycles. See Graph 4, page 36.

SHRINKAGE, CRACKING

A characteristic common to asphaltic coatings, is a tendency to check and crack.

In the test conducted by Dr. Strieter, quoted in the foregoing, this tendency was observed and its character and extent carefully compared in the various samples.

Cracks developed upon continued exposure to the weather in varying degrees. The cracking was greatest in locations farthest North (Buffalo, Chicago, Manville, N. J.), smallest in Washington, D. C. and New Orleans. The Los Angeles samples, with few exceptions, exhibited no cracks at all after 1½ years' outdoor exposure.

Considering only the "Weather-Ometer" panels, these showed the most severe cracking; 42 sets showed cracks under visual inspection. But when examined by the "Spot Test," all but one of the remaining 15 sets had reached the point of failure at 65 cycles. The single exception was the panel with 15% mica filler; it was still free from through cracks.

By comparison, the five sets of 57 panels under outdoor exposure in Chicago, Buffalo, Manville, N. J., Washington, D. C. and New Orleans, when examined with magnifying glass, only four were free from cracks. One exception again was the mica samples; the second, the 35% slate flour; the third, 25% foliated talc; and the fourth, 35% foliated talc. This showing again pointed to a great superiority of the mica as a filler.

Other fillers were mainly various grades of green stone, limestone, dolomite, trap rock, and silica, all in powder or flour form; also sand.

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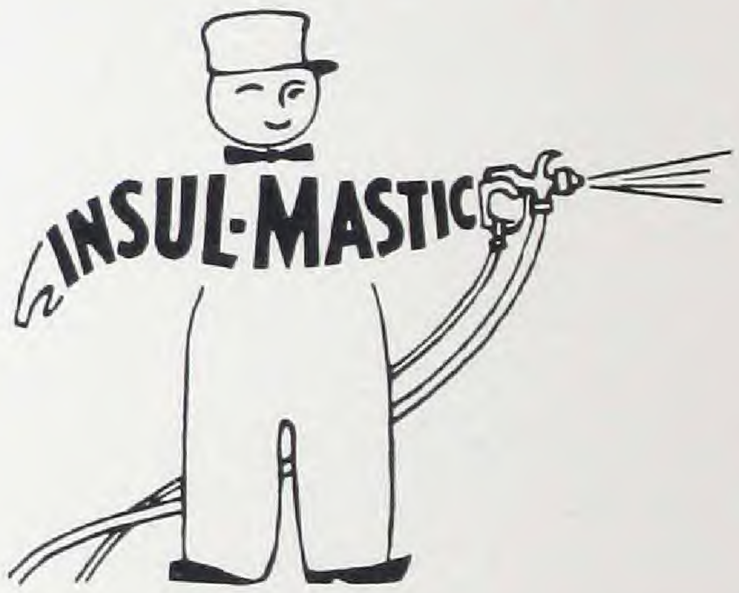
* Research Paper published by The Department of Commerce, National Bureau of Standards, ref. R. P. 1073, "Weathering tests on filled coating asphalts"; O. G. Strieter, Feb. 1938.

think first of the coatings that last!

Attractive, weathersealed walls add to the setting of the Black and Decker Manufacturing Company's office building in Baltimore. The coating is Mica Insul-Mastic.

White Mica Insul-Mastic **beautifies the walls of The Terrace Apartments in Corpus Christi and reflects the heat of the blazing Texas sun.**



Aside from the heavy-duty protection required of Insul-Mastic, industry has another need for protective coatings. It has become more and more desirable to keep building exteriors in a highly presentable condition. The use of Insul-Mastic and granules has already been described for this purpose, but Insul-Mastic also produces a decorative coating in gleaming white, off shades of white or tinted to a specified color. This coating, known as Mica Insul-Mastic, has beautified and resurfaced factory and office buildings, department stores, hotels, hospitals and many other types of buildings. It is a heavy semi-plastic material which seals building walls against moisture and offers a degree of insulation. When used over metal it will prevent corrosion.

Building materials over which Mica Insul-Mastic may be sprayed include brick, masonry, stucco, cement, glass, tile, metal and some types of sound wooden surfaces. One coat is 10 to 20 times heavier than a good 2-coat paint job. Its life expectancy is many, many years beyond that of paint. This is based upon "Weather-Ometer" accelerated weather tests. Applications made in 1939 appear to be as good today as when they were applied and promise many more years of service.

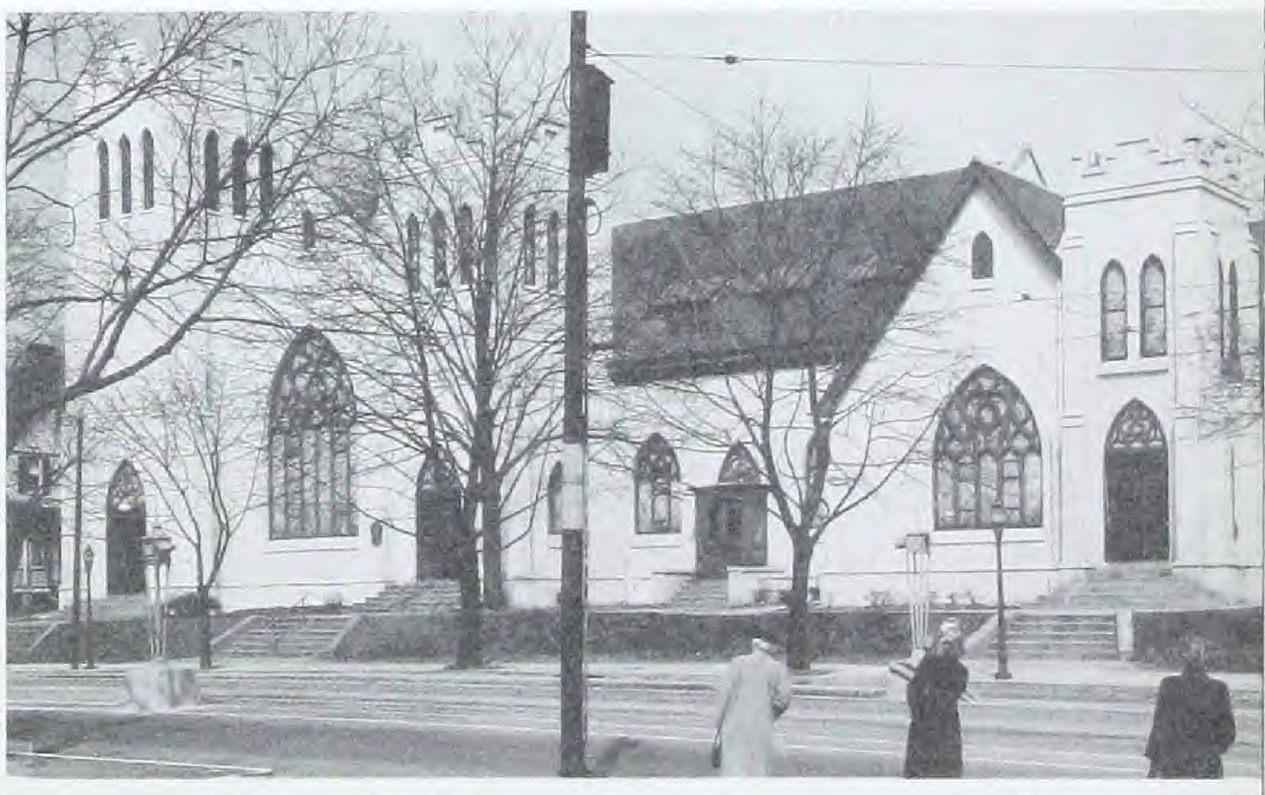
Mica Insul-Mastic contains 15 to 25 percent flake mica (see Superiority of Mica Filler—Page 37) and special penetrating oils as well as other ingredients used in the best grades of house paint. The coating itself dries uniformly. It always retains a degree of elasticity and plasticity. Existing hairline cracks in masonry are bridged due to spray application and the thickness of the coating.

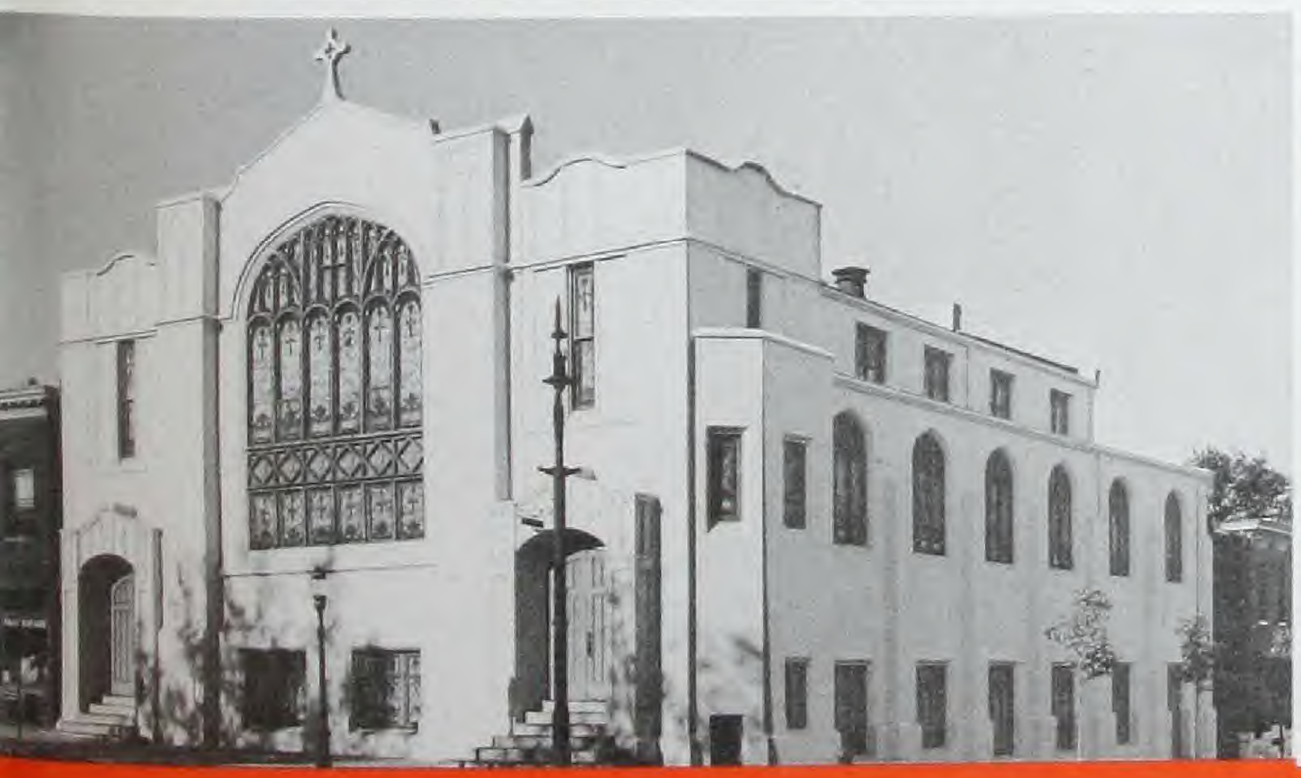
MICA INSUL-MASTIC

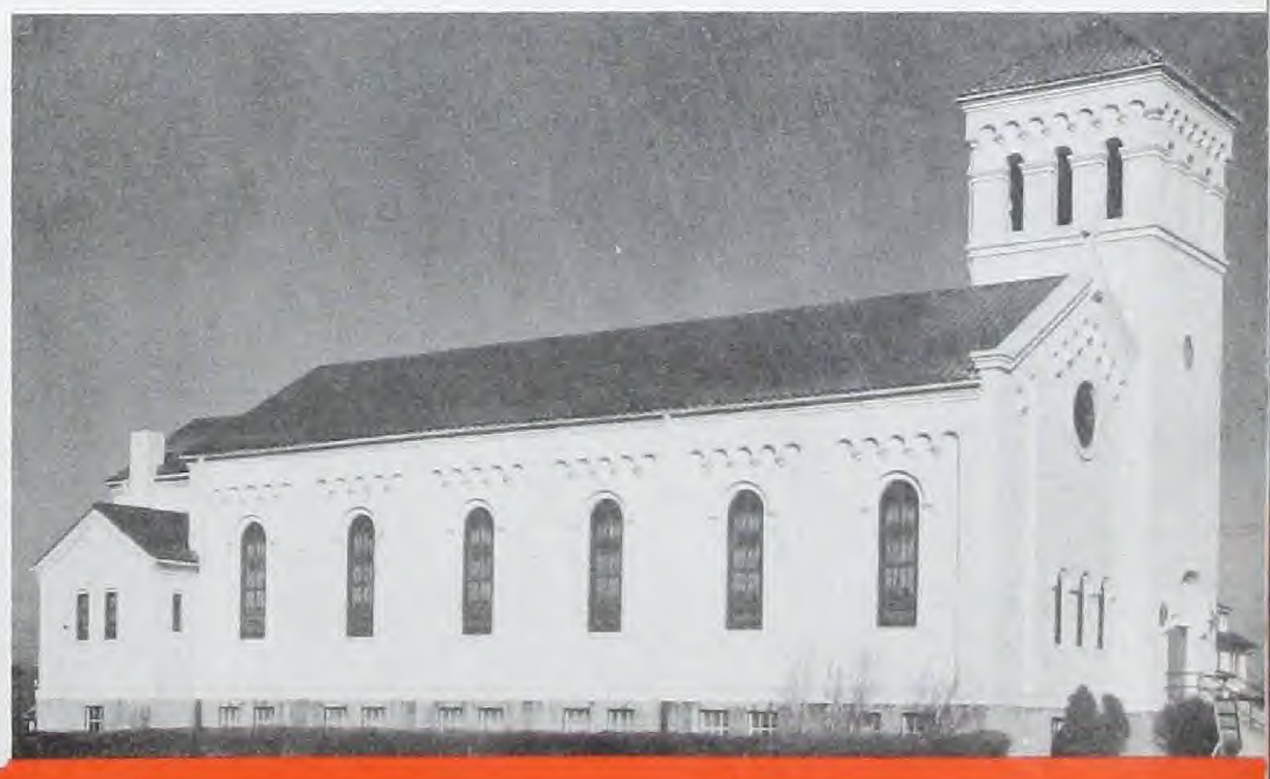
Mica Insul-Mastic is resistant to salt, and to acid and alkali fumes in concentrations normally found in the air, but not to extreme concentrations of the above. Nor is it recommended for use over sappy wood.

The natural insulating quality of Mica is imparted to this Insul-Mastic coating. Many building and home owners report more warmth and

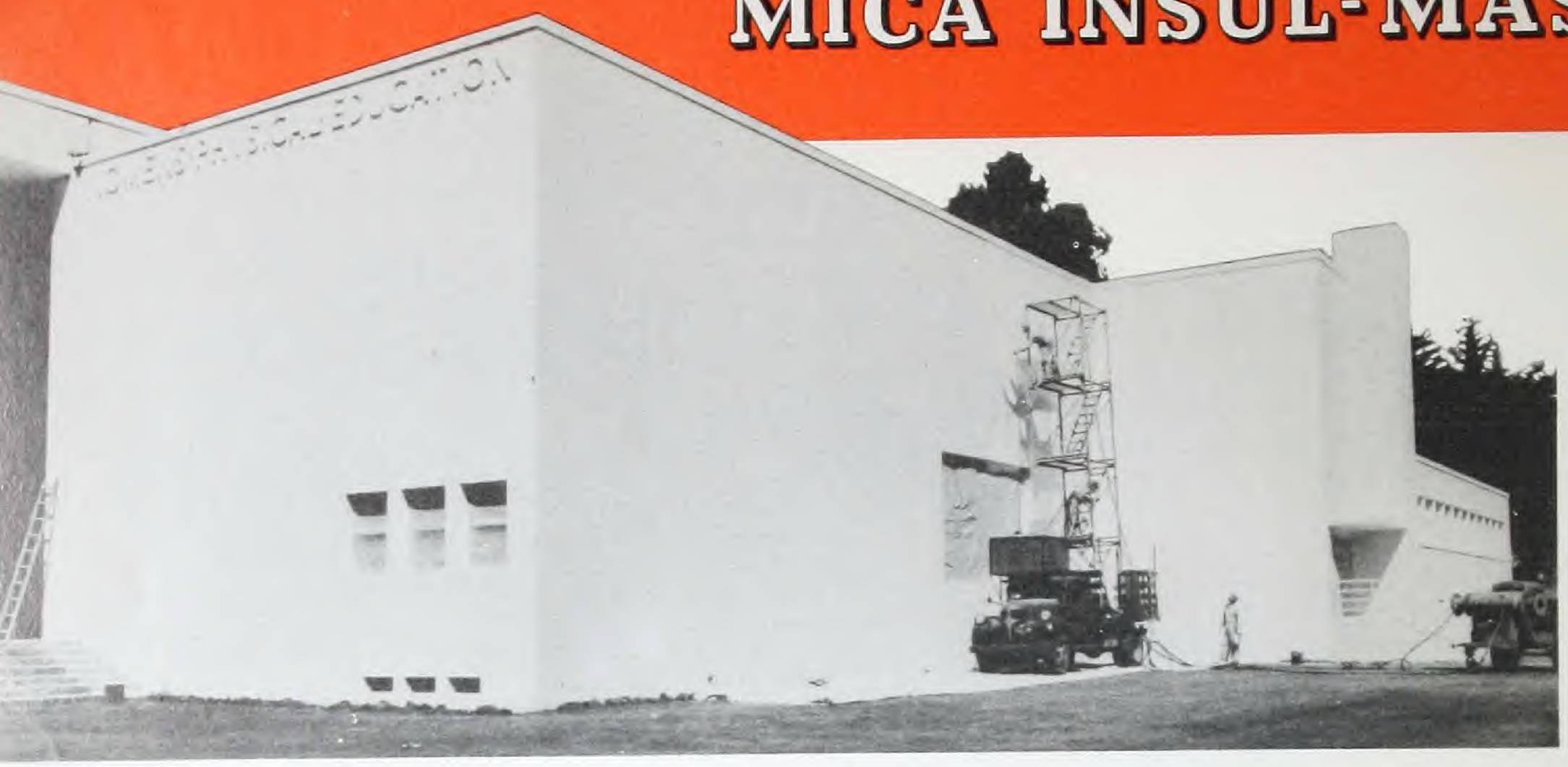
Buildings of many types may be weathersealed and improved in appearance by a *Mica Insul-Mastic* coating. Here is a group of churches which have chosen this coating for resurfacing. Other types of buildings to be beautified and protected with *Insul-Mastic* include stores, schools, factories, theaters and homes.







MICA INSUL-MASTIC



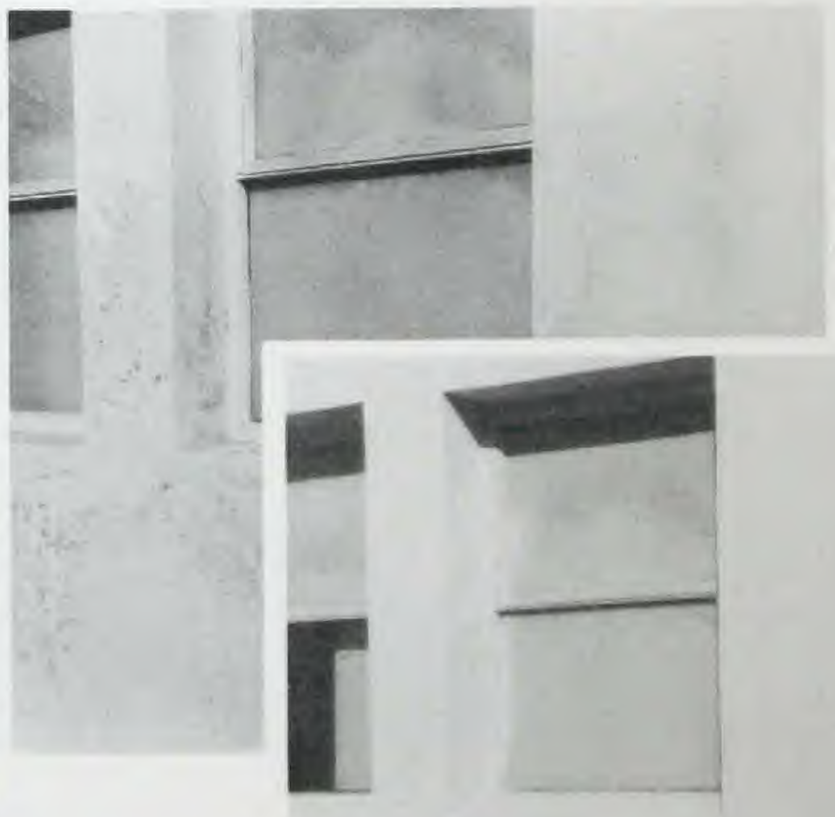
A crew spraying *Mica Insul-Mastic* at the Ventura Junior College, Ventura, California.

reduced fuel consumption in winter. Cooler buildings are also noticed in summer because Mica Insul-Mastic effectively reflects the sun's heat.

The coating is highly fire resistant after it has set.

The efficient temperature range of Mica Insul-Mastic is —20° F. to 180° F. Thicknesses from 3/64" to 1/8" are obtained by using 3½ to 8 gallons per 100 sq. ft. On porous or rough surfaces more mastic will probably be needed to obtain these thicknesses.

Mica Insul-Mastic can be cleaned by washing with mild soap cleaners.

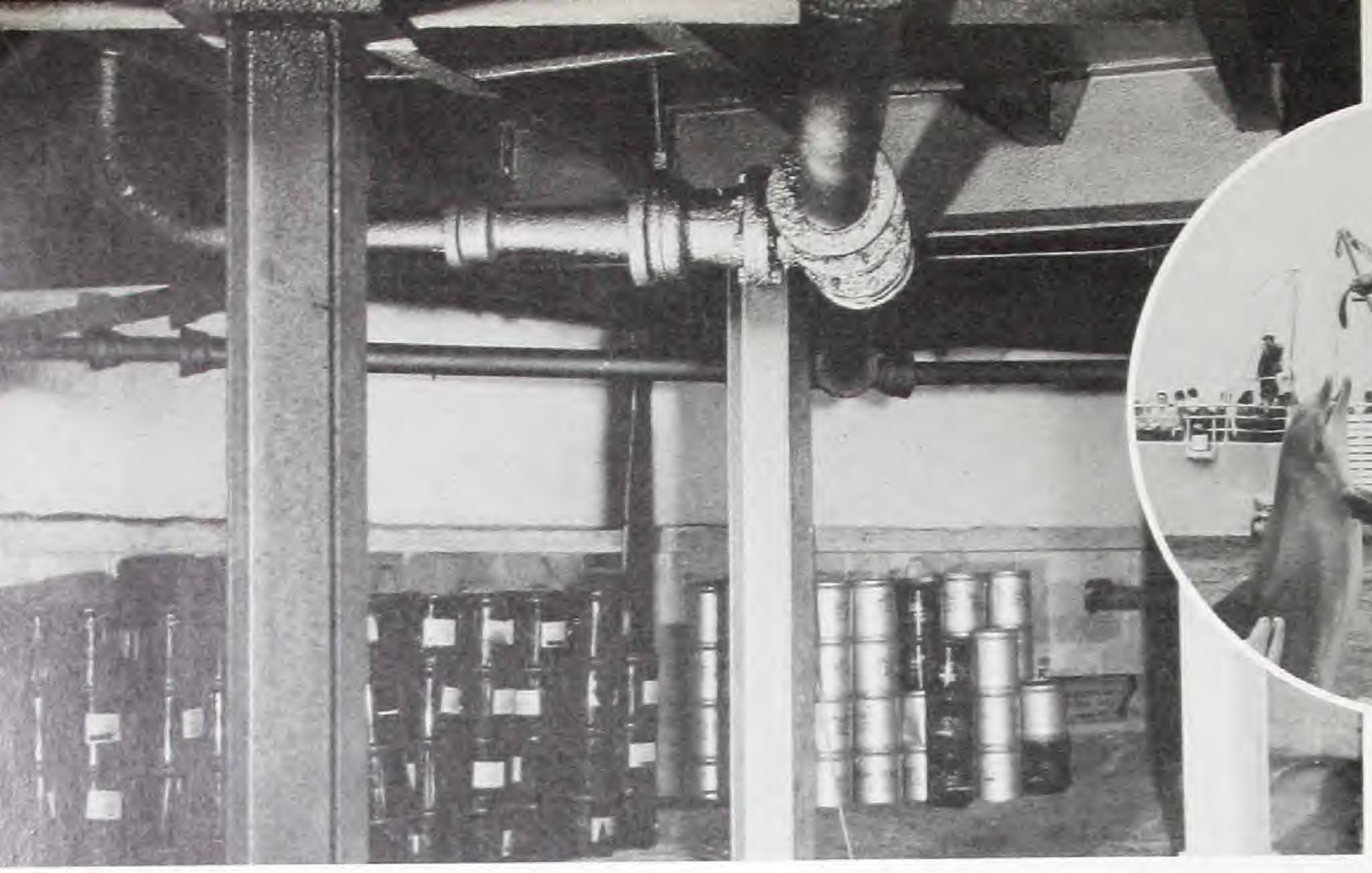


Section of a concrete wall showing cracks and holes before applying *Mica Insul-Mastic* — and the same section with a coating of this weather resistant material.

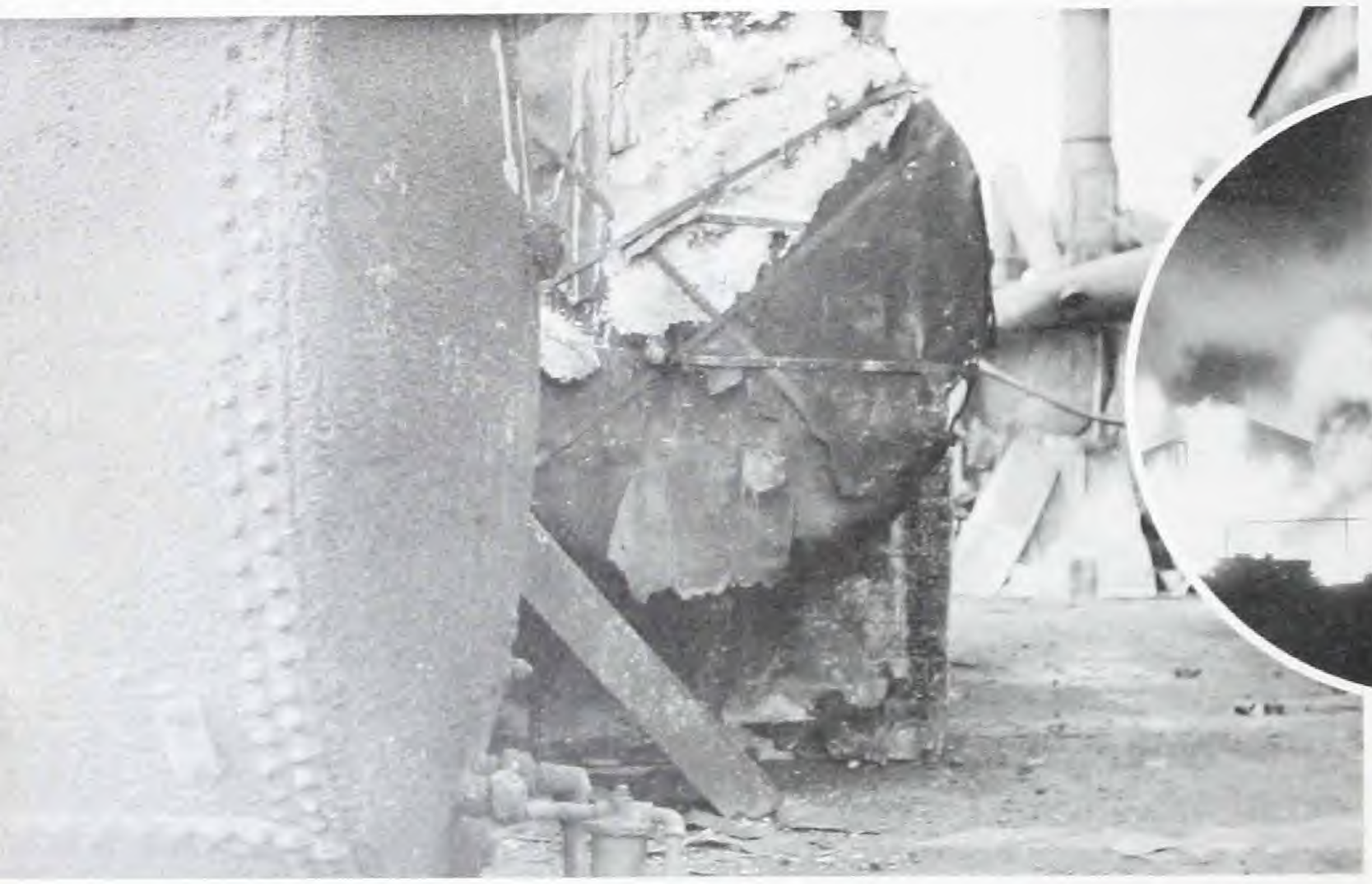
Mica Insul-Mastic transformed this Columbus house to a thing of beauty. Leaking walls were sealed after cement paints had failed.

Left—Spraying *Mica Insul-Mastic* on the outside walls of a school building for beauty and protection.

Below—This stucco home, in poor condition, was resurfaced with *Mica Insul-Mastic*. The heavy new surface will last for years and years.

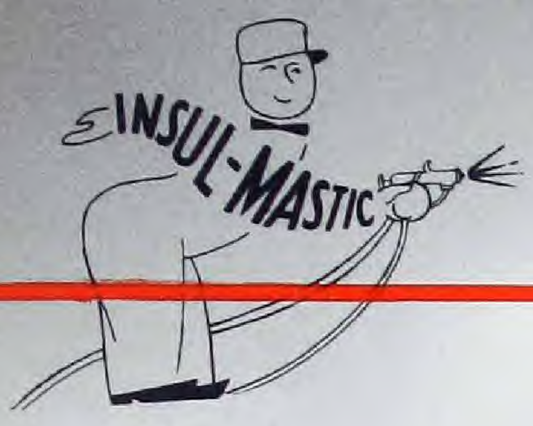


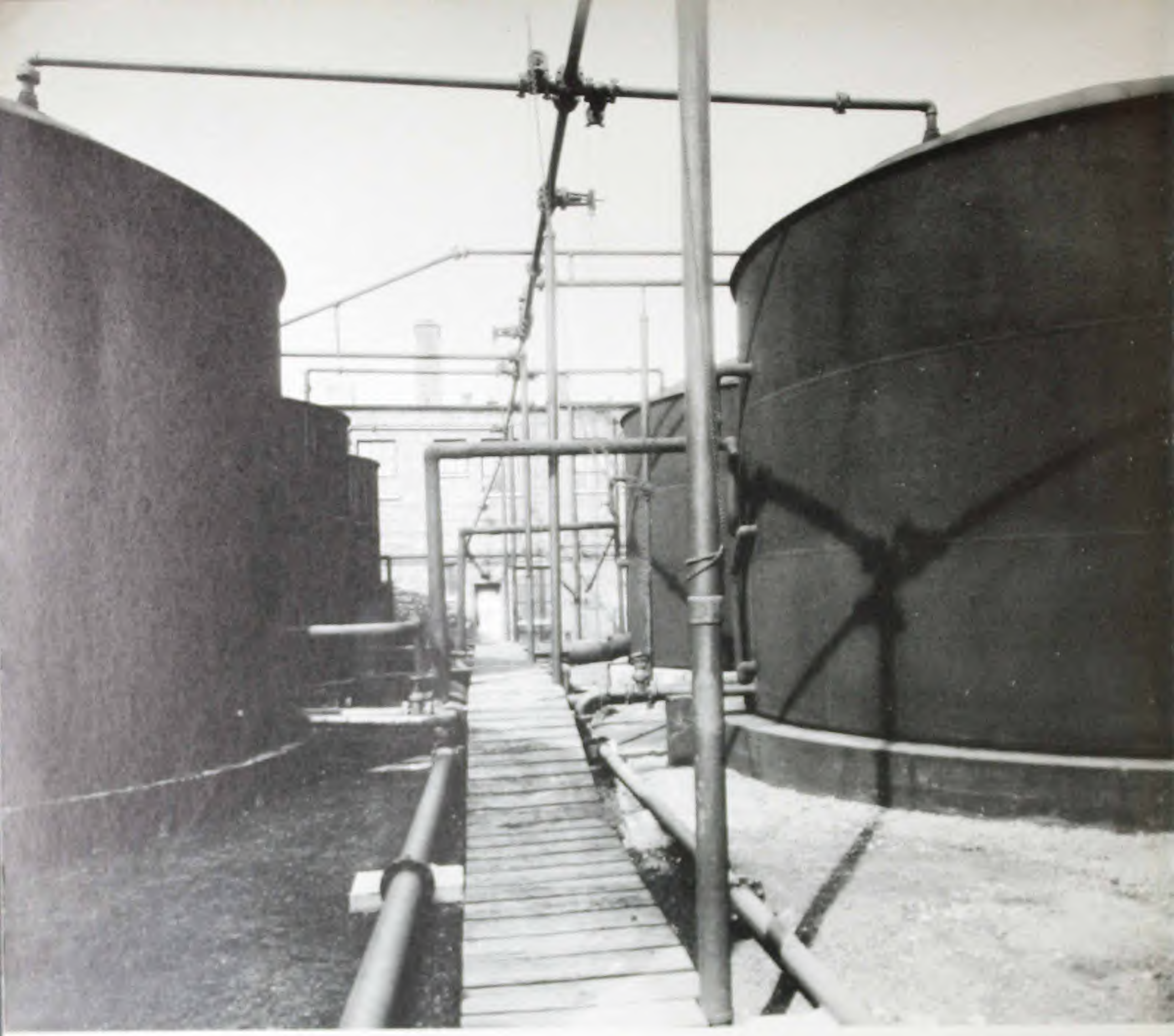
Marineland, Florida . . . pipes, supports and bottoms of the famous salt water tanks were faced with serious corrosion from salt and condensation until coated with *Insul-Mastic* in 1941.



Fire . . . destroyed a Chicago plant in 1942, but the *Insul-Mastic #553 Type D* on the tank at the left clearly resisted the terrific heat. The coating was eight years old.

On the Metropolitan Life Insurance Printing Plant and the famous Metropolitan Life Insurance Tower, spalled concrete and leaky walls were coated and restored to beauty with *Insul-Mastic and Granules*. On the tower the granules matched the original stonework.


INSUL-MASTIC



A twelve year old *Insul-Mastic* application . . . and many more years of protection expected. These heated oil storage tanks at the Murphy Miles Oil Co. in Chicago had never had any maintenance when this photo was taken. The coating is *Insul-Mastic Type "D"*, an insulation which long ago paid for itself in fuel savings. The corrosion and maintenance prevented would also have paid for the coating.

think first of the coatings that last!

One of the mixing rooms at the Insul-Mastic Laboratories. Here coatings are mixed, filtered and homogenized. This plant is generally considered to be the most modern of its kind. Inset is an aerial view of the plant.

Fuel oil storage tanks must be heated to keep the oil flowing freely. *Insul-Mastic Type "D"* insulation, 1/4" thick, retards loss of this heat while preventing corrosion of the tanks.

INSUL-MASTIC CORPORATION OF AMERICA

OLIVER BUILDING PITTSBURGH 22, PA.